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ABSTRACT

The principal aims of this study were to identify, select, analyze, and describe educational programs for culturally disadvantaged children from preschool through grade 12 which had yielded measured benefits of cognitive achievement. A literature search (mainly through ERIC) and mail inquiries followed by telephone consultations constituted the identification and selection process for the programs. Sixteen programs finally selected (situated in 12 urban areas in eight states) were visited on site, and as a result, five programs were eliminated. This report thus contains the descriptions of the remaining 11 programs, all meeting the criteria that no program was included unless data available indicated that pupils in the program had achieved statistically significantly greater gains on standardized tests than had controls, or had improved at a rate better than national norms. Programs described were mostly inner-city projects for black children, but two served mainly Mexican-Americans; descriptions relate to the nature, operation, and results of each program. The report also includes detailed descriptions of the methods and procedures employed in the study. For earlier studies of 21 similar programs in two sections, Parts I and II, see ED 023 776 and ED 023 777, respectively. Programs described in the present report are also individually reported; see UD 010 069 to-078, and 010 114. (RJ)

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FINAL REPORT
Project No. 089013

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A STUDY OF FURTHER SELECTED EXEMPLARY PROGRAMS FOR THE EDUCATION OF DISADVANTAGED CHILDREN

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This study was the work of a team which included at various times Albert Chalupsky, Malcolm Danoff. Cristina Lopez, Debbra Michaels, and Oscar Roberts, as well as the four authors.

David G. Hawkridge
Project Director

SUMMARY

The aims of this study, which was a sequel to a similar study in 1968, were to identify, select, analyze, and describe educational programs for culturally disadvantaged children from preschool through grade 12 which had yielded measured benefits of cognitive achievement.

A literature search established a pool of 320 programs which might meet the criteria for the study. The search was carried out mainly through the Educational Resources Information Centers (ERIC). A letter of inquiry was sent to the project director or other supervisory persons for each of the programs in the pool, requesting latest information if the program was in the director's opinion likely to meet the criteria. Replies were received regarding 145 programs, and 110 reports were sent to AIR for examination.

The chief criterion for including a program in this report was that the pupils in the program had made greater gains in measured cognitive achievement than they normally would have made had they not received the program. No study was accepted for description unless data available indicated that pupils in the program had achieved statistically significantly greater gains on standardized tests than had controls, or had improved at a rate better than national norms.

The reports available to AIR after the mail inquiries had been made were studied closely and some 20 programs were identified for site visits. Telephone inquiries eliminated several of these programs, with the result that 16 were actually visited, situated in 12 urban areas and 8 states. The first aim of each site visit was to confirm that the program under study met the criteria; the second aim was to acquire all information necessary to compile a description according to the format established in this survey. The routine for the site visits was evolved in the 1968 study and was modified only slightly in 1969. Normally it involved discussions with one or more senior persons in each program, as well as some of their subordinates. Visits were in every case followed up by mail and telephone.

The main body of this report contains the descriptions of 11 programs which met the study's criteria. The descriptions have been written to provide a concise yet readable account of the nature, operation and results of each program for principals, superintendents, and other interested persons. The descriptions include five referring to preschool programs, four to elementary pupils, and two at the high school level. They range from small-scale experiments involving as few as 30 children to major projects serving many thousands. Some operated during school hours, others extended the school day. Most were inner-city projects for Negroes, but two served mainly Mexican-American children.

The report also includes details of the methods and procedures employed in the 1969 study, and contains a bibliography citing materials related to programs identified during the study.

INTRODUCTION

Background

The 1967 Amendments to the Elementary and Secondary Education Act contained a request from Congress that successful Title I and other compensatory education programs be identified. In January 1969 the National Advisory Council for the Education of Disadvantaged Children, in its Fourth Annual Report to the President and Congress, was able to respond to this request. The Council's response was based chiefly upon a study conducted in the period March through September, 1968, by the American Institutes for Research in the Behavioral Sciences (Hawkridge, Chalupsky, and Roberts, 1968), of which this report is a direct sequel.

The aims of both the 1968 AIR study and the one reported here were to identify, select, analyze, and describe educational programs for culturally disadvantaged children from preschool through grade 12 which had yielded measured benefits of cognitive achievement.

In the 1968 study, the written reports of over 1,000 compensatory educational programs were perused in a literature search carried out mainly through Educational Resources Information Centers (ERIC), libraries, and some 300 mail requests. With the assistance of a panel of national experts, a list was compiled of about 100 programs, selected not on the basis of geographical area, grade level, or type of treatment, but because each was believed to have enabled its pupils to make greater gains in measured cognitive achievement than they normally would have made had they not received the program. The list was restricted also by considering only programs reported between 1963 and 1968. A schedule of site visits was established and carried out, to include eventually 98 programs in 31 urban areas and 16 states. During the site visits, structured interviews were held to obtain all data necessary to decide whether the program under study had indeed provided measured benefits of cognitive achievement, and if it had, to compile a complete description and to conduct an analysis of the components of the successful programs. Site data were analyzed in the Palo Alto offices of the American Institutes for Research, and final decisions were made about the inclusion of each program visited in the set of descriptions. No study was accepted for description unless data available indicated that pupils in the program had achieved statistically significantly better scores on standardized tests than had controls, or had made greater gains than national normative figures.

The Final Report included descriptions of 21 programs which met the study's criteria. Each description was written to provide a concise yet readable account of the nature, operation, and results of each program for principals, superintendents, and other interested persons who might wish to attempt a locally modified replication. The descriptions include seven referring to preschool programs; 14 to elementary pupils, and six at the high school level. They ranged from small-scale experiments for less than 100 children to major programs involving many thousands. Some operated during school hours, others after school. Most were inner-city projects for Negroes or Spanish-speaking Americans, but some served Appalachian white and other minority groups.

The 1968 AIR study, although extensive, could not reach every geographical area of the United States. Moreover, some programs apparently already successful were not yet at the stage where a proper evaluation could be provided. AIR was able to submit to the U.S. Office of Education lists of programs worthy of study which had been excluded, for one reason or another, from the 1968 report. In January 1969 the study reported here was funded, being an extension of the search for successful programs.

Limits of this Study

As in 1968, the criteria for success were rigidly laid down, and their nature resulted in a comparatively small number of programs being selected for description. These criteria were the same for both studies and are explained below.

The Office of Education asked that the study include all educational programs (no matter what was the funding source) for disadvantaged children. "Educational programs" was interpreted broadly to encompass not only those providing formal instruction in schools but also those seeking out children in their homes or on the streets. "Disadvantaged children" was taken to be a generic term, however inaccurate or disliked, which included children of Negroes, Mexican-Americans (both migrant and resident), Puerto Ricans, American Indians, and Southern rural and Appalachian whites.

The Office of Education further asked that the study include programs serving children from preschool to grade 12. This too was interpreted broadly to include infant education programs. The final specification from the Office of Education was that each program should show "measured benefits of cognitive achievement." The American Institutes for Research, on advice from the Office of Education, interpreted "measured benefits" to mean gains, measured by standardized tests, significantly greater than pupils would have made had they not received the program. Where control groups had been used, statistically significant differences were to be expected. Where test norms were the only available basis for comparison, the pupils in the program were to be expected to make better than normative progress. Normative progress was defined as progress at the national norm, not at that of disadvantaged children. "Cognitive achievement" was limited in this study to achievement in language and number, except that intelligence tests (which often include subtests of other abilities) were judged by AIR to be more in the nature of achievement tests than tests of innate ability in the context of the programs, and were accepted as indicators of cognitive achievement.

The American Institutes for Research decided to include only those studies reported later than 1963, since earlier ones would be too far removed from present-day conditions.

Related Research

It is inappropriate to include under this heading the many documents on which this report is based, as these are referred to in other places in the body of the report itself. An extensive bibliography is included at the end of this volume; it was compiled from the documents reviewed during the course of the study.

Related studies and surveys of compensatory education were discussed in the 1968 report. Since its publication, several other volumes have appeared which review developments in the field. Notable among these was the Office of Education's Profiles in Quality Education (1968), which contained summaries of projects from each state, submitted as outstanding by State Chief Education Officers. No other particular evaluative criteria were used in the selection. The New York State Education Department (1968a and 1968b) was responsible for Mathematics education and the educationally disadvantaged and Educating the Disadvantaged Child: An Annotated Bibliography, both resource books for teachers. State reports of compensatory education provided general summaries annually of activities within each state; New York State and California provided the most comprehensive accounts. Lockheed Missiles and Space Company (1968a) was responsible for a study entitled Early Childhood Programs Replication Project for the U.S. Office of Education. The Phase I Final Report of this study describes methodology for replicating promising programs in early childhood education. The development of the methodology was based on analyses of many early childhood programs, all in California. An extension of the study identified other promising programs at other levels (Lockheed Missiles and Space Company, 1968b).

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METHODS AND PROCEDURES

Selection of Programs to Visit

Based on experience gathered in the 1968 study, AIR employed a slightly different search technique in this study. As before, however, the foundation of the search lay in an extensive literature review, followed by mail inquiries leading to site visits to selected locations.

Literature Search. The primary purpose of this activity was to develop a large pool of educational programs from which subsequent selections could then be made for in-depth study. The pool was further enlarged by the advice of consultants and others with whom AIR staff had personal contact. Information collected on each program during this stage included basic identifiers, references to publications, benefits claimed, and other details where available.

As before, the Educational Resources Information Center (ERIC) system of the U.S. Office of Education provided an excellent focal point for the search. Those monthly issues of the ERIC journal Research in Education (U.S. Office of Education, 1968-69) which had appeared since the ones reviewed in the 1968 study, were screened carefully for leads on relevant educational programs. Arrangements were made with the ERIC Clearinghouse on Educational Media and Technology, located at Stanford University, to review the microfiche copies of those reports which had been identified as worthy of further study based on the information contained in Research in Education. Sometimes it was possible to reject a program on the basis of only an abstract. In most cases, however, a more complete study of the report in the ERIC system was necessary. If a program showed any signs, in the reports available, of meeting the criteria established for this study, that program was placed in the pool.

Mail Inquiries. Letters of inquiry were mailed to the project directors or other supervisory personnel of 320 programs, in 239 school systems, requesting their latest reports if in their opinion their program data met the criteria for the AIR study. The letters specifically stated that if no reply was received it would be assumed that the program was not able to report such data. Each letter was compiled on a Magnetic Tape Selectric Typewriter, an automatic typewriter which makes every letter a top copy even though most of the body of each letter was identical in every case. This machine was used to increase the chances that replies would be received. A copy of a summary of the 1968 AIR study was enclosed with each letter to generate further interest, and to state the criteria.

Replies were received from some 87 persons, regarding 145 programs. Because of the different titles used by various authorities in successive years of the same program, some of the 320 programs originally identified turned out to be one and the same. Others could not be traced at all.

As a result of the mail inquiries, however, 110 reports were added to the AIR collection (which comprises several hundred documents on compensatory education). Many of the reports added were ones dealing with programs which came close to meeting the criteria of the study.

Although deadlines were mentioned in all letters asking for the latest information on programs under inquiry, some programs could not be eliminated from the pool until early June to allow for possible late replies. In a few cases, site visit to programs already selected for probable description gave AIR leads to others worth investigating.

In cases where the available information seemed inadequate for a sound decision to be made on whether to eliminate a program or not, telephone inquiries were made, usually to program evaluation personnel. These inquiries most often related to sampling techniques, comparison groups, or statistical tests employed.

The overall result of the literature search and mail and telephone inquiries was that about 20 programs were selected for site visiting. A few of these were eliminated furing site visit preparations, and several others were ruled out, usually by mutual agreement with the program director, as a result of the actual site visits. Only 11 programs are described in this report.

Site Visiting

Site visit preparation. Because of the need to obtain a great deal of specific program information in the shortest possible time (to cause least inconvenience to local personnel and to conduct the study cost-effectively), a fairly precise routine of site visit preparation was developed at AIR. The reports on a program were studied by the staff until a decision could be made to eliminate the program or not. For programs not eliminated, staff prepared draft descriptions. The draft descriptions followed closely the format used for the descriptions in the AIR 1968 study, with a few minor modifications, and were drawn up using all available information. The main headings (see pp. 10-13) were:

Introduction
Personnel
Methodology: General
Methodology: Specific
Evaluation
Budget
Modifications and Suggestions
Quoted Sources
Sources Not Quoted
For More Information

To complement each draft description, a set of questions was prepared in most cases, concentrating on those areas in which little information was available.

During the compilation of both draft descriptions and their sets of questions, the staff had further opportunities for in-depth review and discussion of the programs. A site visitor received a file for each program he was to visit, the file containing all reports, correspondence, and other documents relating to the program, as well as the draft description and set of questions.

Site visit execution. The site visits were conducted by D.G. Hawkridge, A. Oscar H. Roberts, Malcolm N. Danoff, Peggie L. Campeau, and Kathryn M. DeWitt. The first two were site visitors during the 1968 study; the other three were trained by the Project Director during early visits in the present study.

The site visitors had appointments arranged with the senior persons available for each program, and, depending on the program, with one or more of their subordinates. A particular effort was made to meet first with the head of the evaluation team; next, a meeting was often arranged with the coordinator of specially funded programs. Finally, the program was discussed with those who had administered or actually operated it. In general, the site visitors did not visit the classrooms of programs since in most cases the classes had been dismissed for the summer. This was no handicap to the survey, since the most efficient use of the time available was to consult those who were directing or implementing the program. When new project documents were received during the early part of a site visit, these were examined carefully before detailed questioning of the program director.

During the site visits, answers were sought for the sets of questions covering areas not comprehensively reported to AIR before. The site visitors also became adept at following slight clues which led to the discovery of significant facts about the program or its local context, facts which might not normally be reported. They quickly learned to extend their questioning in such cases, and to request interviews with other personnel mentioned.

Two of the site visitors tape recorded the conversations they had with program personnel, with the consent of those persons. The other three preferred to amplify their written interview notes at the first opportunity. In many instances, this was done in the evening at a local hotel, with the result that drafts of what was being prepared could be discussed the next day with the program director, or else mailed to him for comments very quickly. With one exception, each site visitor was responsible for compiling a new draft description, based on the original draft plus all new information obtained during the visit, for each of the programs he visited (except those eliminated, of course). The site visitor was also responsible for requesting any further data required from the program staff to complete the description; these data he obtained by telephone or letter.

Site visit follow-up was completed when a copy of the new draft description had been commented upon by program personnel, and letters of thanks sent by AIR to those personnel and others who had assisted the study. The comments were almost always on points of fact rather than interpretation.

The descriptions in their final form make up the body of this report. The format is explained fully in the next few pages.

PROGRAM DESCRIPTIONS

During the 1968 AIR study, considerable attention was paid to methods of presenting and summarizing data collected from reports and site visits. The Office of Education requested that descriptions of the programs selected be written so that enough detail was offered for a preliminary decision to be made in a school district about the desirability of attempting a locally modified replication. Since the data were collected from varied sources and in widely differing forms, this request implied the need to reduce the data to a common format in the descriptions.

The 1968 format was examined closely during the current study, and the "description writing guide" developed in 1968 was amended to take into account more recent AIR experience, particularly in the execution of a contract for the Office of Education which required the preparation of a guide for authors of evaluation reports*, and in the conduct of an independent evaluation of a major compensatory education project**. There were obvious changes, such as making Modifications and Suggestions a separate heading, instead of including it under Evaluation. Less noticeable changes were made in the aims or content of many sections. For instance, the Introduction now contains fuller accounts of the context of each program, giving sociological data where possible. Under Personnel a smoother account was striven for. The Budget section was reduced because of the lack of suitable information.

Explanation of the Program Descriptions

Most of the descriptions comprise ten main sections:

Introduction
Personnel
Methodology: General
Methodology: Specific Examples
Evaluation
Modifications and Suggestions
Budget
Quoted Sources
Sources Not Quoted
For More Information

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* Hawkridge, D. G., Campeau, P. L., & Trickett, P. K. Preparing evaluation reports of educational programs: A guide for authors. Palo Alto, California: American Institutes for Research, March 1969.

** Hawkridge, D. G., & DeWitt, K. M. An evaluation of Ellson's programed tutoring technique for reading instruction. Palo Alto, California: American Institutes for Research, March 1969.

Introduction: Here a quick overview of the program is provided. First, a brief description of the treatment is given, followed by details of the pupils served by the program. The geographical and social context, and the historical development, of the program are dealt with next, and the magnitude of the program is outlined. Finally, the cognitive behaviors measured are listed together with a very short account of the main results of testing.

The introduction is intended only to indicate to the reader the salient features of the program, enabling him to judge whether he should read the more detailed description under the other headings.

Personnel: The personnel involved in a program are listed in categories. After the name of each category (e.g., educational aides) a few notes are usually given concerning the qualifications or selection procedures for this category. Should these be fairly obvious, as in the case of guidance counsellors, secretaries, or school nurses, nothing is mentioned. Then for each category the more important activities and duties are listed, although again nothing is entered for the more obvious cases.

Under this heading there may also be noted the time commitment of various categories of personnel, particularly if these people are sharing their time between several programs. Others only tangentially associated with the program being described, such as janitors, cooks, or the district director of research in some cities, are mentioned in a final paragraph rather than by category.

Methodology: General: The assumptions and objectives of the program are frequently included under this heading, particularly if they have been clearly laid down by the program director. A narrative outlining the treatment used in the program forms the core of this part, however, including all the major components in as comprehensive a manner as the available information has allowed. Not only the instructional methods used with the pupils, but also any training programs for teachers are discussed here. Every attempt has been made to provide here a framework of fact about what happens in the classroom, onto which the reader may attach the additional specific examples of the next part of the description.

Methodology: Specific Examples: Where specific examples of principal aspects of a program have been available, these are usually included under this heading, although some may be discussed under Methodology: General. The examples are selected from the available publications concerning the program, or in a few cases on the basis of personal observations of the program. They are selected to illustrate the content, methods, or effects of the program; consequently, they range from infants' songs to tutors' accounts. Materials found to be particularly useful in the program may be listed here or described.

Evaluation: If there is more than one evaluation report available on a program, from two sources for the same year or for several years, this part of the description will attempt to deal with each, showing both juxtapositions and trends. Hence this part ranges from a few paragraphs for some programs to several pages for others. The evaluation reports have been examined critically by the staff of this study, and many programs have not been included in this publications because either the reports or on-site inquiries showed that there were no measured benefits of cognitive achievement for one reason or another. Even for the programs described here there are warnings to the reader; in some of the descriptions specific comments and caveats have been written, as appropriate.

The measures of achievement used are described first, for each area tested. Intelligence tests are included under this heading because, in the opinion of the research staff of this study, they measure achievement rather than innate ability in the context of these programs. The test results are summarized (not presented in full), usually in tables. Wherever possible the results are presented simply, although the level of confidence (p value) for the differences (gains) may be cited. The p value indicates whether or not the differences shown in the results are statistically significant. The term "significant" or "statistically significant" occurs quite frequently. For the layman, a p value of .05 (5 percent) or less means that there very probably was a difference between the scores obtained. A p value of less than .01 (1 percent) means that the difference is almost certainly a real one.

If the data are suitable, graphs are drawn to show the relative status of pupils at the start and end of phases of the program. These graphs plot actual or nominal grade level (the grade the pupil is in) against achieved grade level as measured by tests. The national norm represents pupils who are achieving at the same level as the grade they are in. The disadvantaged norm is a hypothetical one devised for this study and based on many estimates of pupil performance in disadvantaged areas. It shows the disadvantaged pupil as achieving at about two-thirds of his nominal grade level. Programs yielding benefits must produce an upward slope on the graph towards the national norm and away from the disadvantaged norm if those gains are to be thought to be educationally significant in the terms of this study.

Next under this heading other evaluation indices are discussed, usually briefly. The studies undertaken are outlined, and the results summarized, to give a fuller picture of evaluation. This portion is not intended to be exhaustive.

Budget: This heading is not intended to provide for a detailed account of all the expenditures associated with a program. Such figures are rarely obtainable. Rather it is a description of what components a planner would have to take into consideration in replicating the program, together with whatever rough estimates of per pupil costs or of global costs the researchers have been able to secure. It may include typical staffing patterns required, types of materials essential to the program, details of space to be provided in schools, cost-trends over several years, and other relevant items of this nature.

Modifications and Suggestions: Future changes to the program are discussed next. Where possible the reasons for the changes are included. From this portion it should be possible to judge what changes might be made (were it adopted elsewhere) to improve the program still further.

Quoted Sources: Here are listed the reports actually quoted in the description.

Sources Not Quoted: Other publications or documents known to the researchers which give further details of the program described are listed under this heading.

For More Information: One or more names and addresses are given for people closely associated with the program described or its evaluation. These were correct in June 1969.

This study contains eleven descriptions not included in the 1968 AIR study. Others will be found, no doubt, in later surveys, since new programs are being developed, and old ones reevaluated, continuously. The American Institutes for Research will be pleased to receive reports on other promising programs worthy of description in further studies at some future date.

LANGUAGE STIMULATION PROGRAM
IN AUBURN, ALABAMA

Introduction

This program provided language stimulation lessons to small groups of educationally disadvantaged children in an attempt to increase IQ's and language ability.

Auburn is a small (16,000), rural, university town with Negro population (about 35%) concentrated in a few pockets. Most heads of families work in domestic and janitorial occupations, or as laborers. Except for a federal housing project completed over 15 years ago, housing in the neighborhood surrounding the school is very dilapidated and typical of a rural southern Negro community. The school board at first was reluctant to allow the program to be introduced due to racial tensions in the South at the time. However, the school's principal, a Negro, convinced the board that the black community would not object to the program to the degree that the board feared--that indirectly such programs might help black children to compete educationally with white children (a prerequisite for successful school integration). The children were all Negro first-graders (ranging in age from 6-1 to 8-2 with a mean of 6-9) enrolled in the same school. The school was one of five elementary schools in Auburn, and had the only all-Negro enrollment.

The program children (N=32), as well as the comparison children (N=32), came from lower socioeconomic status families (as measured by the McGuire-White Index of Social Status). The mean IQ of these children was 75 with a range of 62 to 91. As measured by the Illinois Test of Psycholinguistic Abilities (ITPA), the language development of these children was almost two years below their age level.

The language stimulation lessons lasted ten weeks during the 1964-65 school year. At the end of this time, and over a year and a half later (the children were in the third grade and 26 matched pairs were still available), the results of a battery of tests indicated statistically significantly greater gains of the program children over the control group in intellectual and language development and in reading skills. As a further measure of the long-range effects of the Language Stimulation Program, a third posttest was administered when pupils were in the fourth grade (and 22 matched pairs remained). Preliminary examination of the data indicates that, nearly three years after the end of treatment, the program children had maintained their superiority over the control children.

Personnel

A. Program Director

A doctoral candidate at the University of Texas and a faculty member of the Auburn University Special Education staff, the program director made the Language Stimulation Program the subject of his dissertation. His previous experience included four years as an instructor at a state teachers college in Louisiana where he also performed evaluations of learning problems of pupils in nearby schools through testing and diagnostic procedures. His program duties, which were part-time and voluntary, included supervision of the special Peabody teachers and psychological examiners. He also managed program planning and evaluation.

B. Special Peabody Teachers

Both women were certificated teachers with some elementary classroom teaching experience. One was the wife of the program director, and therefore had some contact with special education; the other was working towards a masters degree in special education under the advisorship of the program director. Both of these special Peabody teachers volunteered to spend two hours a day, four days a week, instructing program pupils who were taken out of class for these language stimulation lessons. Some additional time was required to plan supplementary lesson activities and to administer group tests (for the pretest and the immediate posttest).

C. Psychological Examiners

For the pretest and first posttest the three examiners, all male, were volunteers from the staff of the Auburn University Psychology Department. They carried out all the individual testing of the experimental and control group children. For the second and third posttests, these personnel changed, but individuals were still all male specialists in test administration (volunteers from university, hospital, or school for deaf staff). Test administrators were not aware of which children belonged to experimental and control groups.

The school's principal, although not directly associated with the program, is given credit for securing approval for the program by the board of education. (See Introduction.)

Methodology: General

The basic assumption on which the Language Stimulation Program was founded was that many minority-group children start school at a severe disadvantage compared with children from middle-class homes and that this retardation is due, at least in part, to their deprived environment. This retardation may be remedied if intervention is started at an early age.

The stated objectives of this program were "to determine to what extent a systematic language development program will augment mental age and language age scores of Negro educationally disadvantaged first grade children" (Carter, 1967). It was specifically hypothesized that the program would enhance language age scores, mental age, and reading ability of the experimental group over the control group.

The curriculum of the program consisted of the experimental edition of the Peabody Language Development Kit developed by Dunn and Smith of George Peabody College for Teachers. The kit consists of 280 lesson plans. During the 40 days of treatment, the first 40 lessons were presented. These were supplemented during each session by selected activities beyond Lesson 40 in the kit and by the reading of a story.

The 32 experimental children were randomly placed into one of four groups without regard for their regular classroom assignment. These groups met, one group at a time, in a vacant classroom which had been assigned to the program. Sessions for each group (N=8) lasted about 1 hour, beginning at 8:00 in the morning, 4 days a week. Thus, the two Peabody teachers each worked with two of the groups, 1 hour per group per day. Because the experimental pupils had been randomly assigned to the four groups, each first-grade classroom had some children absent from the room for treatment sessions almost every hour in the morning. Since control pupils received 1 hour of reading instruction each morning as part of normal class procedures, experimental pupils missed some of their regular reading instruction during the 10-week program.

The Peabody Kit was donated to the program by the publisher, and since the four sessions were held at different times, the two special teachers could use the same kit. The supplementary stories chosen for each session were mostly in books in the personal libraries of the project staff. All of the language stimulation activities involved the total group, that is, a teacher-pupil ratio of 1:8. As control classes were not observed, no assumptions are made about teaching methods and materials used in the comparison group. Average class size was estimated to be between 30 and 35, with varying numbers of experimental pupils out of the room each hour in the morning.

Planning activities were carried out in staff meetings. At these weekly meetings, the program director and the two Peabody teachers discussed pupil behavior and teaching techniques, and planned activities.

Methodology: Specific

The Peabody materials and supplementary stories were used to stimulate the children's language development. To this end activities emphasized story-making, classifying, following directions, looking, counting, describing, and remembering. Examples of these activities include the following:

A. Story-making

The teacher presents a "space scene" picture to the group and asks the children to make up a story about the picture. The teacher makes a tape recording of the story and plays it back for the class. Different children tell different stories as time permits.

B. Classifying

Five chairs are placed at the front of the room. A People Card is placed on each chair. (People Cards might include pictures of a mother, father, boy, girl, and baby.) Clothing Cards are distributed among the children. Children come up one at a time and place their cards on the correct chair; for example, if a card shows clothing a baby would wear, the child places the card on the chair with the baby card.

C. Following Directions

The teacher gives oral directions for the group to follow in unison. For example, stand up, touch your hair, touch your shoulder, sit down. Or, in later lessons, directions might include touch your nose with your left hand, put your right hand on your left ear, put your left hand on your right shoulder.

D. Looking

The children are asked to look around the room very carefully. The teacher asks them to name as many things (objects) as they can. Each child is asked to name one object and to tell what it is used for.

E. Counting

The teacher presents Number Cards and asks the group to name them (numbers) in unison. The children are guided to name the cards first in sequence and then in random order. Each pupil is asked to count to ten.

F. Describing

Describing activities frequently serve multiple goals. For example, in one such activity, Color Cards are placed on the chalk tray (red, orange, yellow, green, and blue). Picking up one card, the teacher asks children whose clothes are the color of the card to stand up. Each child who stands up tells the others what he is wearing of that color. The teacher asks some pupils to give a complete description of their clothing. This particular activity gives children practice in naming and classifying (colors) in addition to developing complete sentences for their oral descriptions.

G. Remembering

The teacher reads a simple poem to the children. She repeats the poem, letting the children complete the last word in each line. The teacher asks the children to recall some information emphasized in the poem. After prompting the group by reading the first half of a line from the poem, the teacher asks individual children and, finally, the group in unison to complete the line correctly. (A regular remembering activity was developed around the supplementary story read by the teacher at the end of each lesson. Not only would children answer questions about the story immediately after hearing it read, but also they would be asked questions about the story the following day.)

H. Listening

Of course, listening was integral to all of the activities illustrated above. However, specific training in listening skills may be illustrated by the following activity: The teacher reads word lists, having told the children to clap their hands when they hear the name of a number (dive-five-hive-ton-ten).

The tape recorder was used almost daily. A typical lesson (about 50 minutes) might begin with a tape recorded story of, say, The Three Bears. The children would be asked to recall the names of the characters. The teacher would retell the story, stopping after the word, "said," to let individual children take the parts of the story's characters and finish their sentences. The next activity might involve classifying and naming pictures on cards, perhaps making up a story about some of the pictures or describing characteristics of the pictured objects. The third activity in the day's lesson might be a counting game in which a few of the children are given one number card each. As the teacher calls out a number, the child holding that number card stands up, says his number out loud, and calls another number. If the child fails to stand up when his number is called, he loses his card to a child who does not have one and the game continues. The fourth activity in the day's lesson might be a following-directions game, followed by the final daily activity, "Story Time." The daily story was usually preceded by questions about the previous day's story and followed by questions on the story just read.

As indicated earlier, the ten-week Language Stimulation Program covered the first 40 lessons in the Peabody Language Development Kit. A daily lesson, such as described above, would cover one of these Peabody lessons and additional activities pulled from Peabody lessons 41-280, and the supplementary story which the teacher selected from a variety of sources. These stories might be fairy tales (Sleeping Beauty) or stories from other cultures (Blaze and the Indian Cave), or stories about careers (I Want to be a Teacher), and so on.

Evaluation

A. Measures of Achievement

For clarity, the following is a brief summary of the sequence of procedures followed from the time the children were pretested until the delayed posttest was administered. A pretest battery was administered to educationally disadvantaged Negro children about one-third of the way through their first year in school. (No routine testing program was followed by the school.) Two groups were matched on the following variables: McGuire-White Index of Social Status (based on occupational level, educational attainment, and source of income of "status parent"); Stanford-Binet, Form LM, IQ and MA; chronological age, and language age (ITPA LA). Speech and hearing tests were used to identify children with significant speech or hearing impairments, and these children were omitted before matching. Each child in a matched pair was randomly placed in one of two groups. Then one group was randomly designated as experimental; the second group, as control. In all, there were 32 matched pairs with equal numbers of boys and girls in each group.

The effects of the ten-week Language Stimulation Program were examined both in terms of immediate results (Posttest 1) and long-range results (Posttest 2). For Posttest 1, the pretest battery was readministered immediately after termination of treatment, and results indicated statistically significant gains for the experimental group over the control group in IQ, mental age, and language age (Carter, 1967). These immediate results will not be discussed further here because the long-range effects of the Language Stimulation Program demonstrated by Posttest 2 scores have more dependable educational implications.

The Posttest 2 battery was administered to 26 of the original 32 pairs about 20 months after Posttest 1 (end of treatment), or when the children had completed about three-fourths of the third grade. Essentially the same results were obtained. That is, mean differences between the two groups on measures of IQ, mental age, and language age were statistically significant in favor of the experimental group (based on the direct difference t test for matched groups). In addition, a new difference emerged. The experimental group scored significantly higher than the control group on measures of reading ability, although this difference did not appear in the Posttest 1 comparison. Finally, the test battery was again administered about one year later, when the children had completed nearly three-fourths of the fourth grade. For this test (Posttest 3) 22 of the original matched pairs remained. Although data analyses are still underway, and no levels of significance have been established for differences between groups, preliminary indications are that the experimental group has maintained its superiority over the control group on measures of IQ, language age, and reading ability (although measured reading ability for both groups is below grade level). The claims of success for the program are based on the following tests: The Stanford-Binet Form LM, the Illinois Test of Psycholinguistic Abilities, the California Reading Test, and the Durrell Analysis of Reading Difficulty. Although a statistically significant difference was shown for Stanford-Binet results between experimental and control children, the amount of the difference (about 5 IQ points) may not reflect changes of fundamental educational importance. It is encouraging, however, that the Stanford-Binet results were supported by those obtained for achievement tests. Table 1 summarizes means for experimental and control groups on these tests for Pretest, Posttest 1, and Posttest 2 and compares differences between the groups on Posttest 2. Trends are shown graphically in Figures 1, 2, and 3 on pages 21 and 22.

TABLE 1

Comparison of Pretest, Posttest 1, and Posttest 2 Mean Scores for Experimental and Control Groups, Language Stimulation Program

Tests	Experimental Means			Control Means				
	Pretest (1.3)[1] N=32	Posttest 1 (1.7)[1] N=32	Posttest 2 (3.7)[1] N=26	Pretest (1.3)[1] N=32	Posttest 1 (1.7)[1] N=32	Posttest 2 (3.7)[1] N=26	Posttest 2 Difference Between Means	P
Stanford-Binet IQ	74.6	83.4	86.8	74.2	76.8	81.4	5.4	<.05
ITPA Total Language Age in months	57.8	67.0	76.9	58.6	56.8	72.0	4.9	<.01
Lee-Clark	.6	.8		.5	.8			
Calif. Reading Test: Total[2]			3.2			2.8	.35	<.05
Vocabulary[2]	-	-	3.1	-	-	2.8	.24	-
Comprehension[2]	-	-	2.9	-	-	2.8	.12	-
Durrell Analysis of Reading Diffic.:								
Oral[2]	-	-	3.0	-	-	2.4	.6	<.05
Silent[2]	-	-	2.4	-	-	1.9	.5	<.01
Listening Comprehension[2]	-	-	2.8	-	-	2.3	.5	-

[1] Grade level of pupils at time of testing.

[2] Scores reported in grade level.

[Source: Tables 3 and 4 (Carter, 1967)].

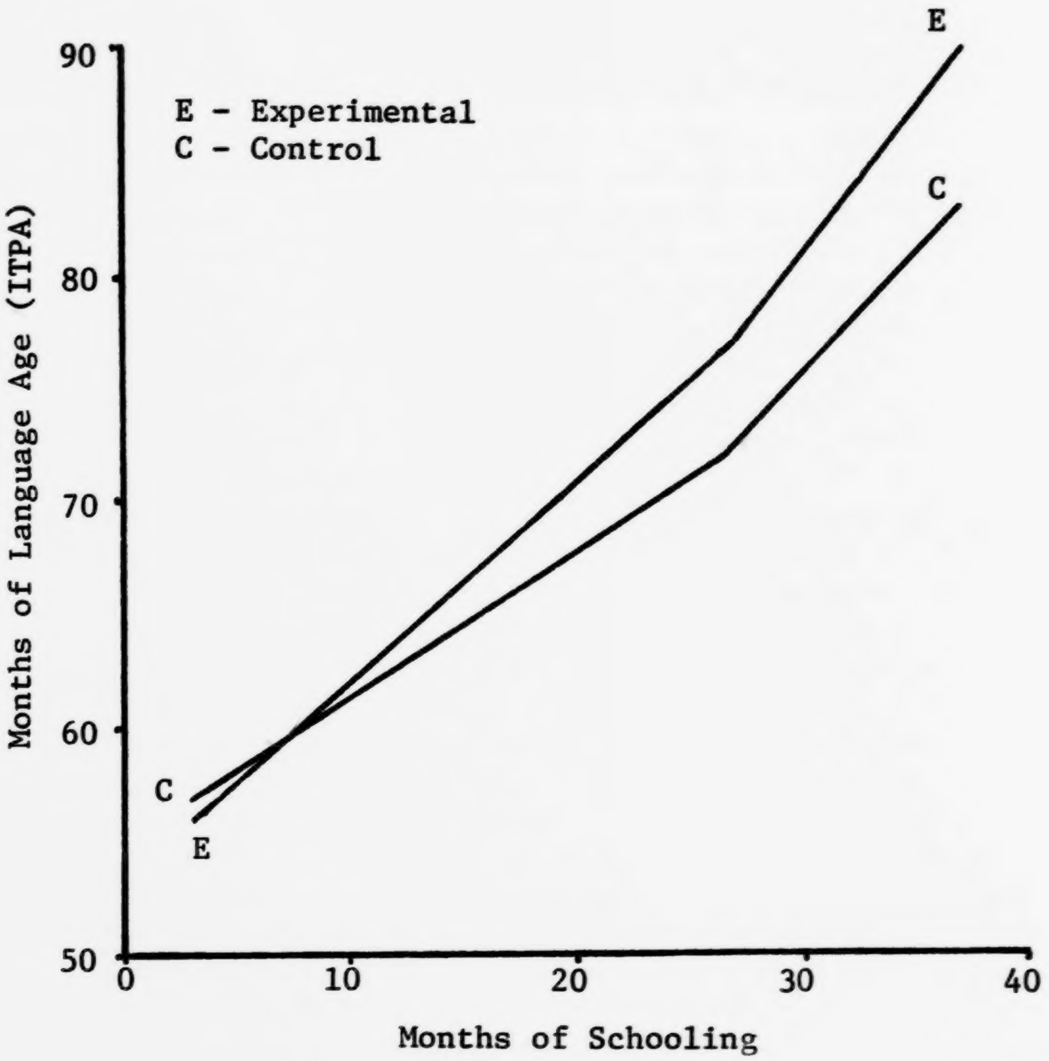

Fig. 1 . Mean change in language age over time as measured by the ITPA, Language Stimulation Program

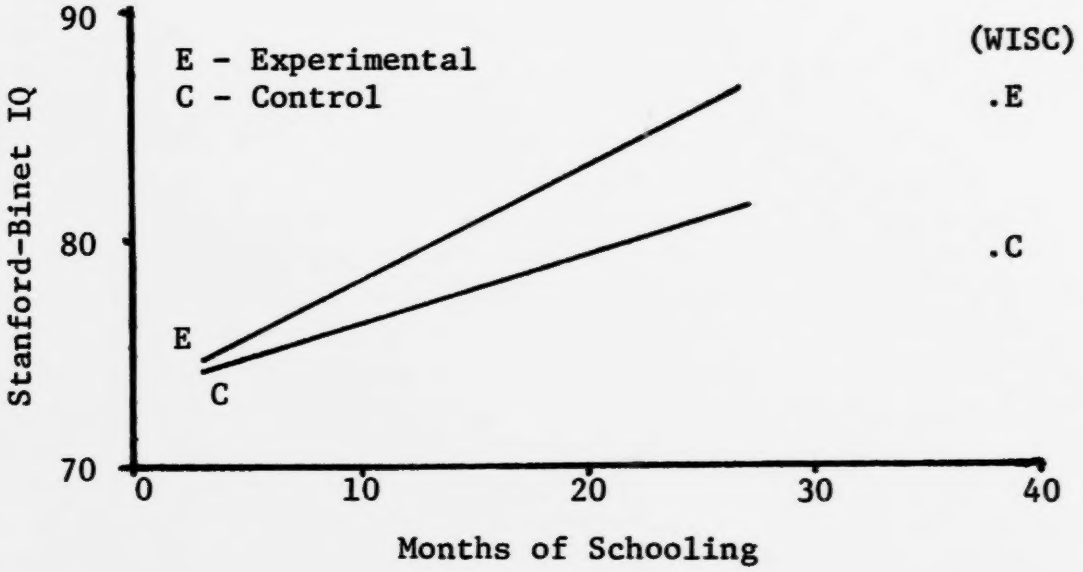

Fig. 2 . Mean change in IQ over time as measured by the Stanford-Binet Form LM, Language Stimulation Program.

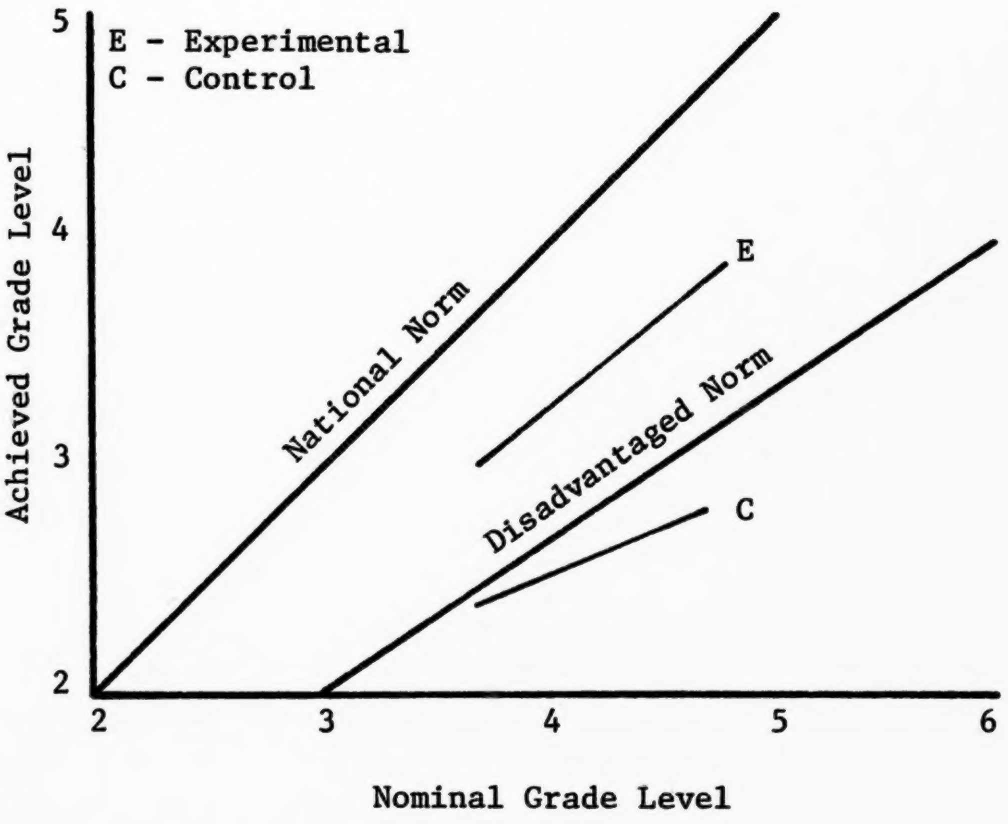

Fig. 3. Mean gain in oral reading over time as measured by the Durrell Analysis of Reading Difficulty, Language Stimulation Program.

B. Other Evaluation Indices

No other objective evaluation indices were used to measure the effectiveness of the Language Stimulation Program. However, the program director commented that of the original sample, eight control pupils are now in "special education" classes at the school. Only one of the original program pupils is in such a class.

Budget

From the pretest through the immediate posttest, the program cost was virtually nil because the two special Peabody teachers and psychological examiners donated their services, and the publisher of the Peabody Language Development Kit donated the Kit. The Posttest 2 and Posttest 3 follow-ups were supported by two $7,500 grants from the U.S. Office of Education.

Quoted Sources

Carter, J. L. The long-range effects of a language stimulation program upon Negro educationally disadvantaged first grade children. Houston, Texas: University of Houston, May 1967.

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THE PRESCHOOL PROGRAM
IN OAKLAND, CALIFORNIA

Introduction

The aim of this program was to prepare disadvantaged children to enter kindergarten by giving them preschool experiences. These experiences were chiefly designed to augment the conceptual and cognitive development of the children.

The pupils in the program were mostly Negro 3- and 4-year olds. About half were boys. Their parents had to give consent for them to be included in the program. They were drawn from neighborhoods which were economically depressed, with high unemployment rates and substandard housing. Many of the families in these districts were receiving Aid to Families with Dependent Children, including all those having children in the program. The centers for the program were located in schools containing over 80% Negro children, with one exception.

The program began in September 1966, although preschool centers had operated for several years previously under Ford Foundation, Oakland Public Schools, and Economic Opportunity Act funding. The experience gained in the earlier projects was used to build this program.

About 600 pupils attended the 12 preschool centers in each academic year. They were taught in some 40 classes.

The success of the program was shown by a comparison of scores of children in the program and of scores of controls on the Pictorial Test of Intelligence. Gains made by children in the preschool centers were considerable, placing them about 9 IQ points above children from the same neighborhoods who had not attended preschool.

Personnel

A. Supervisor

A teacher on special assignment was full-time supervisor of the program. She had considerable classroom experience and was fully certificated as a teacher. She had overall responsibility for activities in the program.

B. Co-Supervisor

A second teacher on special assignment was full-time co-supervisor. Like the supervisor, she was fully qualified and experienced, but her duties were particularly to coordinate the parent involvement aspects of the program, including directing the assignments of the school-community workers (see below).

C. Evaluator

A part-time evaluator was available to assess the success of the program each year. She was also a teacher on special assignment. She prepared an annual report (see Sources Quoted) containing analyses of evaluation data collected during the preschool program's testing sessions.

D. Teachers

In both years of the program (1966-67 and 1967-68), 20 female teachers were employed. In 1967-68, they taught 40 classes in double sessions. All were certificated, and many had qualifications in early childhood education. About half were Negro.

E. Teacher Aides

One part-time teacher aide was employed for each class, i.e., 40. Aides were members of the communities from which the children were drawn, and were almost all Negro. They were assigned to a wide variety of tasks in the classroom by the teachers. Often they helped pupils' language development by stimulating discussion while the pupils were engaged in learning experiences.

F. Parent Volunteers

The parents were asked to participate in the program to the extent that at least one would be available in each class to help the teacher and the teacher aide. Parent volunteers were not paid. They undertook tasks similar to those of the teacher aides. One parent from each class functioned as a parent leader. The parent leaders met at least once a month in a parent group specifically designed to develop leadership potential.

G. School-community Workers

One full-time and six part-time school-community workers were employed in the program to visit both the classrooms and the homes. They brought film slides and learning materials to the homes to demonstrate what happened in the preschool; partly to encourage attendance, partly to recruit for the following year. They attended in-service training meetings of the program staff. Like the teacher aides, they were drawn from the communities where the program operated.

H. Testers

The four testers were recruited from graduate students working towards the master's degree at the University of California and Mills College. These paid personnel were given orientation in test administration procedures. Testers did not know which of the children being tested were in the program and which were in the comparison (no treatment) group.

Three full-time school nurses were available to assist with health instruction, immunizations, and general health matters in the program.

Three health aides also worked part-time in the program. They were involved in medical examinations, and in instruction on health matters in the classrooms.

A full-time psychologist worked with referred pupils in the program, dealing with learning and developmental problems.

Methodology: General

The stated objectives of the Oakland Preschool Program were to help disadvantaged children increase their potential for early success in school and to help each child realize more fully his potential for intellectual, social, physical, and emotional development (Oakland Public Schools Research Department, 1968). Specific program objectives, paraphrased below and presented with examples of illustrative activities, represent major segments of the program.

A. Augmentation of Conceptual and Cognitive Development of the Children

Throughout the school day such manipulative materials as puzzles, pegboards, and lotto games were utilized to teach the children to categorize, to recognize similarities and differences, and to recognize number symbols. Trips to places in the community provided enrichment and the opportunity for children to relate what they had learned in the classroom to another environment. In addition, many of the program activities described under program objectives listed below also augmented the conceptual and the cognitive development of the children.

B. Improvement of Language Skills

The improvement of the language skills of the children was undertaken in several ways. The "Housekeeping Corner" was used for telephone conversations and other forms of dramatic play. Children were encouraged to name and to label the manipulative materials which they used as well as to name and to talk about the foods provided for them at "Snack Time." "Listening Center" activities included hearing tapes and records of music and stories. Language Master materials were used to teach the children to recognize their own names and to develop a basic vocabulary, while the daily language period reinforced language skills through such activities as retelling stories and playing games which emphasized auditory discrimination. Finally, daily opportunities for children to talk with individual preschool staff personnel and parent volunteers expanded and reinforced language skills of these children.

C. Stimulation of Interest and Curiosity

Excursions to local places of interest, music and rhythm activities, science experiments with magnets and floating objects, classroom experiences with animals, and the opportunity to plant seeds and watch flowers and vegetables grow were a few of the many program activities designed to stimulate the interest and curiosity of the children.

D. Improvement of Social-Emotional Adjustment

The program provided the preschoolers with an opportunity to be with other children and with interested adults who were not in their immediate family setting. These encounters were utilized by preschool staff personnel and parent volunteers to encourage the development and redirection of the copying, social, and communication behavior of the children, in an effort to improve their general relationships with others and their eventual adaptation to the kindergarten environment.

E. Improvement of School-Parent Understanding

Meeting parents on a daily contact basis and involving them in the center were the means employed to improve school-parent understanding. In addition, monthly parent meetings were held at each of the 12 centers. The meetings, both educational and social in emphasis, enabled parents to become acquainted with the preschool staff and to acquire information about the program. Nutrition, child growth and development, and other topics of interest to parents were discussed at later meetings.

F. Detection and Remediation of Physical Defects and Other Health Problems

The preschool public health nurses implemented the health program by working closely with parents and serving as a health education resource for the teaching staff. The three nurses each were assigned to approximately 200 children. Specific goals of the health services program were as follows: to assist parents and children in understanding the importance of being in the best possible physical and mental health for a good start in school; to obtain a complete health history of each child; to provide hearing and vision screening tests for each child; to refer children with medical and dental problems for follow-up and treatment (all children were eligible for medical and dental care through the state Medicare Program); and to see that children were adequately immunized and had tuberculin tests.

G. Detection and Remediation of Learning and Developmental Problems

The preschool psychologist worked with parents and the staff to provide a suitable learning environment for children with specific learning and developmental problems. She also identified children to be considered for enrollment in gifted or special classes when they entered kindergarten. In addition, the psychologist helped parents and staff to relate the developmental processes of parenthood to the curriculum and took part in the parent education activities.

H. Pre- and In-service Training

The program supervisor and her staff provided pre-service and in-service training for teachers, teacher aides, community aides, and nurses in the areas of child growth and development, health education, development of techniques for working with preschool children and their parents, and the uses and purposes of preschool equipment and materials. Presentations were made at these meetings by leading consultants in the field of preschool education. As a follow-up to the discussion topic, visitations were made to preschool centers to observe the teacher and the teacher aide in action, the physical setup, and the use of equipment and materials. A special committee of five teachers, each teacher from a different geographical area, helped to screen speakers for in-service meetings and to plan centrally organized meetings and other in-service activities. Experts also addressed teachers at their regular staff meetings, where on-going development, evaluation, and refinement of the program were emphasized. Daily in-service training for teacher aides took place at each of the 12 centers under the direct supervision of the preschool teacher. These daily sessions lasted about 30 minutes.

The adult-pupil ratio in each classroom was about 3 or 4 adults to 15 children. In each case, the teacher "managed" the instructional environment, leading her team of one teacher aide and one or two parent volunteers. In addition, she collaborated with the nurse and the psychologist in matters relating to the physical and emotional well-being of her pupils. Finally, she consulted with the community workers regarding their visits to the classroom and to the children's homes.

The schedule for a typical day in the Oakland Preschool Program is presented in Table 2. The session generally lasted about 3 hours.

Methodology: Specific

The following are specific examples of three language development activities (Oakland Public Schools, Urban Educational Services, undated).

A. Language Awareness/Letter Matching Lesson

Purpose:	To become familiar with configuration of words which label pictures.
Material:	Set of wooden letters and matching picture cards or flannel board and letters.
Instruction:	Child names picture on card, looks at word on picture card and manipulates letters, matching to outlined letters on card. Each letter is exact size of printed letter. Same thing may be done with flannel board and letters. Teacher next puts up appropriate word (one used in lesson) and child matches word, letter for letter.

B. Literature Lesson

Purpose:	To let the children become familiar with the Mother Goose Nursery Rhymes.
Material:	Flannel Story - Little Miss Muffet

TABLE 2

A Typical Preschool Day in the Oakland Preschool Program

Language Development (15 minutes)

Examples: speech production, language awareness, language patterns, vocabulary enrichment, literature, visual perception, auditory discrimination, cognitive development.

Either the whole class or small groups took part, with considerable variation in methodology to suit preferences and capabilities of individual teachers. The lessons were planned to take into account verbal and physical aspects of the various Language Development activities.

Enriching Experiences--Any time during the day in conjunction with or as follow-up to Language Development activities.

Examples:

audiovisual materials (tape recorder, film strips, posters, pictures, movies, magazines, objects from home and school, and prints, slides, and movies of the children)
excursions and trips
cooking and eating experiences
use of library (browsing, research, sharing books, checking out books, library standards, care of books, trip to public library, getting card)
resource people and visitors (school nurse and doctor, principal, other teachers, librarian, policeman, students--playing violin, sharing pet, school monitors, and parents--playing guitar, sharing games and animals)
science experiences (planting, evaporation, weather, cocoon, hatching chicks, using yeast, exploring five senses, snails and worms, shadows, waterlife, air experiments, floating experiments, awareness of environment, measuring)
assemblies or joint activities with kindergarten or other classes (puppet show, music activity, visits to and from kindergarten on group and individual basis, participating in assemblies, reading to preschoolers by students from other classes)

Nutrition (20 minutes)

Examples: informal conversation, manners, tasting experiences, pouring and serving.

Story Groups (20 minutes)

Examples: interaction with story, verbalizing.

Physical Development (25 minutes)

Examples: concepts about space, large muscle coordination, physical fitness, creative rhythms, socializing experiences.

Creative Arts (40 minutes)

Examples: construction, large blocks, painting, cutting-pasting-collage, clay, water play, music, creative rhythms.

[Adapted from Appendixes B and C, pp. 51-55, Oakland Public Schools Research Department, 1968. See Quoted Sources.]

Instruction:	Tell the rhyme using the flannel characters. Retell and let the children help finish parts, e.g., "and down came a _______."

Variation-1 Let a child put the appropriate pieces on flannel board as the story is told.

Variation-2 Let a child tell the rhyme as the teacher or another child puts on the pieces.

Variation-3 Talk about the rhymes and help children think about how many things happened in the story.

1. Miss Muffet sat down.
2. She ate.
3. Spider came.
4. He sat down.
5. Miss Muffet ran away.

This should clarify the story and the sequence. To emphasize this, mix up the story and have the children tell you what is wrong, e.g., "The spider sat down to eat and Miss Muffet came and frightened him."

C. Cognitive Development Lesson

Purpose:	To learn the names of various signs and to relate them to pictures of signs, etc.
Material:	Flannel board pieces to community set.
Instruction:	Prepare children for walk by discussing what to look for. Small groups assigned to a parent-aide work well for walks so the children may talk while walking and observing. Notice signs and stop lights. Follow up by using flannel pieces. Discuss where a particular sign was, what it says and differences in signs. Review vocabulary learned during the next several days. Other follow-up suggestions:

1. Make chart showing signs.
2. Write and display simple story about walk.
3. Children draw pictures of signs.
4. Children cut out pictures from magazines of things seen on walk.
5. Take pictures on walk, use for review of vocabulary. Show pictures on opaque projector to extend language development.

D. Aides

Table 3 represents a sample of specific ways in which aides interacted in the program at various points in a single day's session.

TABLE 3

Sample Schedule of Aides' Interaction in the Oakland Preschool Program

Manipulative Activity (self-selected) (35 minutes)
Read to child; encouraged child to retell story using puppets; gave suggestions for using materials such as pegs and mosaics to color or match designs; named letters child used in "fit-a-space"; helped blindfold child for matching-textures-and-shapes activity; helped child with sorting, categorizing, and sequence games; took attendance.

Language Development (30 minutes)
Sat with children for group lesson; participated with children and encouraged those who needed it; lead finger plays or songs as teacher suggested; lead small-group discussions on weather, calendar, and classroom pets; prepared snack with child helper.

Snack (15 minutes)
Sat with assigned group; encouraged good manners; encouraged child participation in passing food and pouring milk; encouraged conversation and started one, if necessary, by using picture or object; related clean-up to classroom standards and individual responsibilities; developed concepts such as color, number, size.

Story Groups (20 minutes)
Read story to groups; encouraged child to discuss pictures and talk about story; let children suggest books to read.

Physical Development (30 minutes)
Took out equipment for physical development; participated with children in ball and jump-rope play and organized games; encouraged children to verbalize what they were doing; encouraged children to play creatively on equipment; encouraged developmental use of materials such as balancing, chinning, and climbing.

Creative Arts (40 minutes)
Made a variety of material readily available; encouraged children to talk about art experiences (did not make suggestions); encouraged correct use of materials and supervised clean-up; participated in walks, science experiences, or library visits; assisted in preparation for going home--notes, children's work, and so on.

Evaluation with Teacher (10 minutes)
Discussed and made suggestions for working with children; discussed use of materials; discussed children's emotional and social growth and helped make anecdotal records; helped evaluate skills; discussed plans for following day.

Evening
Participated in adult education classes for parents and teachers. These classes, held at each of the centers twice a month for 1 or 2 hours, were organized in various ways. Some incorporated resource people and/or films, followed by discussion. In others, the discussion followed a workshop, or observation, or sharing of experiences. Principles of early childhood education and suggestions from parents were considered in devising techniques for improving parents' effectiveness in the classroom.

[Adapted from Oakland Public Schools, Special Urban Educational Services, Office of Human Relations, 1967.]

Evaluation

A. Measures of Achievement

The Pictorial Test of Intelligence was the standardized measure used to assess progress of children in the program. Three groups of program pupils provided data. First, 30 pupils (out of 51 who attended preschool for three semesters before entering kindergarten in September 1968) were tested in March 1967, and in October-November 1968. Second, 31 pupils (out of 81 randomly sampled from the 40 classes) who had attended the program for two semesters were tested in October-November 1967, and again in June 1968. Third, 31 pupils (from the same sample as the second group) who had attended for two semesters were tested in October-November 1967, and again in September-October 1968.

A comparison group, made up of 81 children who had not attended preschool but who were in the same kindergarten classes as program pupils, was tested in September-November 1967. Like the program children, the comparison children were from families receiving Aid to Families with Dependent Children, and lived in the same neighborhoods. The comparison group was not tested earlier than kindergarten. The groups and the testing scheduled are summarized in Table 4 below.

TABLE 4

Groups of Pupils Tested in the
Oakland Preschool Program, and
the Testing Schedule

Group	Testing Schedule			
	Spring 1967	Fall 1967	Summer 1968	Fall 1968
I (3-semester)	Yes	No	No	Yes
II (2-semester)	Not in school	Yes	Yes	No
III (2-semester)	Not in school	Yes	No	Yes
Control (no treatment)	Not in school	Yes	No	No

The data obtained from the testings is summarized in Table 5.

TABLE 5

Pictorial Test of Intelligence Means for
Groups of Pupils in the Oakland Preschool Program

Group	N	Testing Schedule			
		Spring 1967	Fall 1967	Summer 1968	Fall 1968
I (3-semester)	30	85.8	Not tested	Not tested	92.4*
II (2-semester)	31	Not in school	80.0	93.4*	Not tested
III (2-semester)	31	Not in school	84.2	Not tested	89.8*
Control (no treatment)	81	Not in school	83.0*	Not tested	Not tested

*Data obtained for comparative purposes (see below).

Table 5 shows that pupils in Group I scored about 9 IQ points more on the test than did the comparison group. Group II, tested before the summer vacation but after only two semesters, showed the same relative status. Group III, tested after the summer vacation, averaged about 7 IQ points more than the comparison group. The differences between the experimental groups and the comparison group were statistically significant beyond the 5% level in each case, after t tests had been applied to the means. Gains made by each of the experimental groups were also statistically significant, beyond the 1% level. The most valid comparisons of gains, however, are those from fall testing (Groups I and II), since that was the time of year when the control group was tested.

Group I may not have been fully representative of the program population, but Groups II and III were randomly selected. The control group offered as sound a comparison as could be found without pretesting children not in the preschool.

B. Other Evaluation Indices

In this program, many other sources or instruments were used for evaluation besides the Pictorial Test of Intelligence. They included a teacher rating scale; a staff questionnaire; a parent questionnaire; a parent leader questionnaire; the psychologist's and nurses' referral lists; daily records kept by the school-community workers, the psychologist, and the health aides; and other records. A parent interview survey was also conducted.

The general picture of the program presented by these ratings and records was extremely favorable to the program in most areas; in a few instances there was a need for changes and improvement.

Budget

The cost per pupil of the preschool program was a little over $1000 per year, including every provision and service. Actual instruction accounted for about 55%, and capital items about 15%. The funds for the program were obtained under California Assembly Bill 1331.

Temporary buildings were erected for the program, and personnel were hired as listed in the Personnel section. New materials were purchased, some in each year, but their total cost amounted to a very small percentage of the budget.

Modifications and Suggestions

The curriculum and instructional methods used in the preschool program are under continuous review in order to identify the components which have a significant impact on the children's cognitive development.

Close attention is to be paid to improving articulation between the preschool program and the conventional kindergarten classes which the program children enter.

In-service training for teachers and aides will include instruction in effective techniques for improving communication between parents and the program staff.

Use of a mobile unit for immunizing children is being considered as a more efficient and economical alternative to the present method of requiring parents to make appointments and transport their children for this purpose. (Parents would still be required to do the latter for their child's health examination.)

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LEARNING TO LEARN PROGRAM
JACKSONVILLE, FLORIDA

Introduction

The emphasis in the Learning to Learn Program was on helping children learn to learn, that is, to acquire flexible strategies for dealing with challenges and problems. There was a corresponding de-emphasis on acquiring factual content or knowledge. The program was organized around a carefully planned sequence of games and game-like activities which take into account the child's level of cognitive development and make maximal use of his abilities and interests. Special teaching methods, geared to the open-ended feature of these activities, guaranteed success to each child, regardless of his ability. The program took into account various developmental and learning principles from psychology.

Children in the experimental and control groups were drawn from two virtually all-Negro communities on the south side of Jacksonville, Florida. Although both of these communities are near the downtown area, nearly all the dilapidated, hastily built houses are situated on undeveloped and completely unimproved land. Matching on socioeconomic level and cultural background was accomplished by selecting 72 five-year old Negro children from homes with annual family incomes below $3000. None of the parents were employed at an occupational level above unskilled laborer. To control for intelligence and school readiness skills, the three groups were matched on scores obtained on the Stanford-Binet Intelligence Scale and a school readiness screening test developed and standardized by the program director.

The children were divided into three groups of 24, with about the same number of boys and girls in each group. The experimental group was exposed to the Learning to Learn treatment for 9 months, from September 1965 to May 1966. One of the control groups was exposed to a "traditional" kindergarten program which consisted of group activities designed to expose the children to a wide range of stimulation, concepts, and ideas, but was not based on the developmental sequential program, nor was it designed to teach these children how to learn. This "traditional" control group attended a church-run kindergarten. (As of the 1968-69 school year, Florida public elementary schools begin with first grade.) The second control group consisted of children who remained at home throughout the year and were not exposed to any formal "preschool" training, that is, did not attend a private kindergarten. Performance of the Learning to Learn group was compared to the two control groups on a variety of developmental measures. Results of these tests showed that the experimental group made much greater gains than the controls on all of these measures and that the differences were large enough to be of practical as well as statistical significance. A follow-up study with measures taken in the public school system at the end of the first grade indicated that children in the experimental group were still significantly superior to the other two groups on nearly all of the developmental measures. The long-term effects of the experimental program were most evident in measures of intellectual functioning on which traditionally trained children and children without preschool experience remained much below the experimental group.

Personnel

A. Program Director

The director, who donated his full-time services to the program, held a PhD. For several years he served as staff psychologist at a school for emotionally disturbed and mentally retarded children, where his responsibilities included diagnostic testing, therapy, and research. Besides managing the Learning to Learn Program, training and supervising the program's instructional staff, and developing the special games and materials used with the Learning to Learn children, the program director assumed the duties of bus driver in order to transport the two dozen experimental children (none of whom lived within walking distance) to and from school.

B. Program Evaluators

The evaluation of the Learning to Learn Program was performed by an independent evaluation team from the University of Florida. Both members of the evaluation team held PhD degrees. One was Assistant Professor of Clinical Psychology and the other Assistant Professor of Psychology at the University.

C. Teacher

A qualified teacher with a masters degree in education and 4 years experience in grades K through 3, the Learning to Learn teacher donated her full-time services to the program. She planned and organized daily lessons and participated in continuous in-service training and daily staff planning sessions.

D. Teacher Aide

The salaried, full-time teacher aide, a Negro, was recommended to the program director by one of the parents. Without prior teacher training or teaching experience, she nevertheless responded very well to the Learning to Learn in-service training and was adept at working with the children when they needed help or wanted to talk to an adult. The teacher aide also helped in daily planning and organization of instructional activities.

E. Testing Personnel

Four qualified examiners were trained in administration procedures for the individual testing sessions. Two of these individuals held PhD degrees. The others had extensive experience in diagnostic testing and some experience in therapy; all testing personnel (two men and two women) also scored tests.

The program also employed a full-time secretary, a full-time maid (who also prepared the daily snack), and, for a while, a bus driver.

Methodology: General

The Learning to Learn Program was organized around certain basic principles of mental growth and child development. One assumption was that development of the child's ability to think, reason, and learn follows an orderly sequence of growth with periods of transition. Based on past child-development research, it was further assumed that this sequence proceeds from motor, to perceptual, to symbolic levels. Additional principles of mental growth and child development which were basic to the program may be paraphrased as follows:

> Learning is an active, on-going process that occurs when material the child uses possesses certain properties: (a) it must be appealing and attractive enough to arouse the child's curiosity; (b) it must make the child feel reasonably sure of what he is doing; (c) and it must direct the child to a goal and at the same time give him some feedback concerning where he is with respect to the goal.
>
> The methods employed to teach the young child must be flexible, play oriented, and be adaptable to different developmental and learning levels [Sprigle, in Van De Riet & Van De Riet, Appendix A, 1966].

The Learning to Learn curriculum, materials, classroom physical arrangements, and orientation of teachers were structured on all of these theories.

The curriculum, materials, and method. The uniqueness of the Learning to Learn curriculum lay in the introduction of entirely new techniques, approaches, and materials which require the child to manipulate, explore, and experiment. Through a sequence of carefully planned experiences, the curriculum moved from motor manipulation to the building of perceptual imagery to symbolic experiences through the medium of interesting and challenging games and game-like activities. The activities were designed to progress from low to high in motor-perceptual-symbolic skills and also to move across these dimensions in sequential fashion [Sprigle, in Van De Riet & Van De Riet, Appendix A, 1966]. For example, the games were constructed around five content areas (clothing, food, animals, furniture, transportation). These five areas were chosen because examples of content are familiar to children of all socioeconomic backgrounds, and because they are readily available as real or miniature three-dimensional objects. Each of the five areas was sequenced in such a way that each was revisited and repeated in a variety of ways. Each time, however, the game or activity moved one step beyond the real and the concrete toward the abstract. The real orange, for example, was replaced by a picture of an orange as the only stimulus, and finally, the games were highly verbal and required statements about an orange. Every game or activity engaged the child in some kind of interplay of manipulation, perception, and verbalization. Games at the beginning of a sequence emphasized development of motor and perceptual-imagery skills and processes, and minimized the necessity for verbal communication. Games at the end of the sequence were predominantly verbal and stressed the understanding and use of language, auditory discrimination, and concept formation [Sprigle, et. al., 1968]. All new materials and approaches were field tested to determine clarity of instructions, motivation, and interest, before being incorporated into the Learning to Learn curriculum.

Through intensive in-service training the Learning to Learn teacher (and her teacher aide) became child- rather than content-oriented. (The nature of this training is described under In-service Activities.) Their roles were carefully defined to reflect the premise that each child has a drive for maturity and increased competence and mastery over his environment. The major purpose of the teacher and her aide was to support the child's efforts in this regard, and to create and maintain an environment where each child could develop independence, responsibility, self-confidence, and respect for himself and others. For example, children were protected by certain rules from intruders who might harm them, or disrupt or destroy. However, the teacher's observation of and sensitivity to each child was such that, in general, she could anticipate problems before they started. She knew when a child was about to get himself in trouble. She knew his tolerance for frustration. She knew when an activity group was potentially explosive. Typically, the teacher would unobtrusively guide potential troublemakers into other activities where their special interests and abilities would be highlighted. The teacher's techniques in introducing the various games and activities were also supportive, yet geared to (again, unobtrusively) arranging contingencies in such a way that the child could not fail. For example, in a game in which a child was asked to identify a capital letter which the teacher held up, he might not be able to name the letter, but maybe he could respond that it was "red," or that it was "bigger" than another letter the teacher held up. All of the games were open-ended, permitting the teacher a great deal of flexibility in adjusting the demands made on a child to his individual capabilities.

Physical arrangement, scheduling, and grouping. The program required two classroom areas. One was a work-play area large enough to accommodate 24 children who could engage in a variety of activities without competing for space or materials. A smaller room set apart from this work-play area was used for small-group work with more structured learning activities. (The second room could be an adjoining hallway or other small space, the only requirement being that it should be as free as possible from visual and auditory distractions.)

This kind of physical arrangement allowed for both homogeneous and heterogeneous grouping of children. It provided a large area in which all children could work and play together in activities which they defined and structured (about 90 minutes). From this general area, groups of from two to four children of the same developmental level were taken in turn to the small room to engage in planned learning activities (about 10 to 20 minutes per group). The adult-pupil ratios in each room, the grouping arrangements, the nature of the work-play activities, and the approximate time blocks for each major type of activity are shown in Figure 3.

<table>
<tr><th colspan="5">ALL ACTIVITIES TAKE PLACE IN THE LARGE ROOM, EXCEPT SMALL-GROUP SESSIONS</th></tr>
<tr>
<td>FREE ACTIVITY
Adult-Pupil Ratio: 1:about 20
Grouping: Heterogeneous
Materials: Learning to Learn games and activities[1] from past small-group sessions, blocks, tape-recorded stories, electric typewriters two-way radios, writing, drawing, and printing materials, educational toys, books, miscellaneous (from home)
SMALL-GROUP SESSIONS (in small room)
Adult-Pupil Ratio: 1:2, 3, or 4
Grouping: Homogeneous
Materials: Learning to Learn games and activities[1]</td>
<td>CLEAN UP</td>
<td>SNACK</td>
<td>STORY (or Music/Rhythm)
Adult-Pupil Ratio: 2:24
Grouping: Heterogeneous
Materials: Books, tape recorder, taped stories, records, simple rhythm equipment</td>
<td>RELATED ACTIVITIES
Adult-Pupil Ratio: 1:10
Grouping: Heterogeneous, 2 groups of 5 boys & 5 girls each.
Materials: Varies with activity, which is related to that day's small-group work</td>
</tr>
<tr><td>90 minutes[2]</td><td>15 min.</td><td>15 min.</td><td>30-45 minutes</td><td>Remainder</td></tr>
</table>

[1] (See "E. Key aids and materials," p. 10.)

[2] (Time units fluctuate to suit day-to-day requirements.)

Fig. 3. Typical day's schedule at the Learning to Learn School.

Use of the small-room work area and small homogeneous groups facilitated the control of extraneous stimulation. The room was nearly barren except for the learning materials for that particular small-group session. The child's attention was drawn to the materials and the teacher. The floor, rather than tables and chairs, was the work space. This appeared to be a more comfortable arrangement because the children had comparatively greater freedom of movement.

Continuous regrouping permitted a child to work on one level with one kind of material (e.g., a number game) and at another level with another kind of material (e.g., a language game). It was felt that such flexibility prevented children from stereotyping each other and helped each child see that he was better in some things than in others. Whatever his level, he was assured of success. Each child was exposed to the new game or activity at his own pace. Some children needed time to overcome self-doubt and become oriented before tackling a game. The teacher accepted the child's decision and behavior in these cases, as long as he did not engage in solitary activity that would distract the other children. The teacher did not give information in a direct, formal way, but rather listened and observed, and encouraged the children to look and think about the materials and to talk over their observations and discoveries. The teacher was a member of the group, entering the discussion only to clarify what a child might say, to correct distortions, to question a statement by asking the group its opinion, or to relate a statement to experiences others might have had which were inconsistent with what the speaker said. During these discussion periods, and after a child had made a decision or given an answer, he was asked to relate "what had gone on in his brain" (i.e., to recognize, organize, and make public this internal process). If a child had difficulty expressing the process he used to solve a problem, the teacher guided him (through subtle inquiry) to clarify it. The other children in the group were expected to show respect for the speaker by being quiet so that he could think, by giving him a chance to solve the problem or meet the challenge himself. Development of a positive self-concept was felt to be enhanced in this way, the assumption being that it is ego building for a child to know he has the attention of the group, that his ideas are as important as those of other speakers. The child was encouraged to listen to himself as he spoke in order to evaluate his own thoughts and feelings. The games and activities used in these small-group sessions were gradually moved out to the large room. Here, they were available for use during the free-activity period, and children defined and structured their use of these materials to suit themselves.

At the end of the 90-minute free-activity period in the large room (coinciding with the end of the 10- to 20-minute small-group sessions), there was a general cleanup (about 15 minutes) in preparation for a snack (about 15 minutes) and story- or music-and-rhythm time (about 30 to 45 minutes). In keeping with the philosophy that learning is an on-going, active process, the stories, and the curiosity and interest they aroused, were not confined to "story-time." Children were encouraged to relate the experience through media of their own choosing. One child might draw a picture, while another might reconstruct the story with blocks. All books were accessible to children on a loan basis, and parents were encouraged to read to children each night. Remaining time (the total classtime was 3 hours) was devoted to large-group activities (half of the class in each group) based on that day's small-group work. For example, if small-group work had emphasized numbers, the children might be asked to draw a set of objects that represented a specific number.

In both classroom areas, then, the child had the opportunity to struggle with and master difficulties in his own unique way at his own pace. It was felt that the child learned to become more independent as he learned how to master new situations. He "learned to learn" to think, to reason, and to develop self-confidence, and self-esteem through more effective and efficient copying behavior, be it of a social, personal, or academic nature [Sprigle, in Van De Riet & Van De Riet, Appendix A, 1966].

Parent participation. Another important component of the program was the participation of both the father and mother of each child in monthly discussion groups. Held on Sunday afternoons, these meetings were very well attended. (The program director made telephone calls to parents not present 15 minutes before these meetings and nearly always got a 100% turnout.) Parents were divided into two groups small enough to encourage active participation.

At the initial meeting parents were asked two questions:

1. How can we help your child this school year?

2. What help would you like to get from these discussion groups?

Their answers were used as a basis for the content of future meetings. Parents were encouraged to ask questions and to talk about their children's lives outside of school.

It was estimated parents talked at least 80% of the time. The program director, the teacher, and the teacher aide described exactly what they did in class. In addition, videotapes of classroom activities (both in the large and small rooms) were shown regularly at these meetings. The program director filmed these activities himself twice a week, so that any one of at least eight current videotapes might be used to stimulate discussion. The videotapes were shown to parents so that they could see the connection between what was actually happening to their chilren and the objectives they (the parents) had articulated at the initial parent-staff group meeting in answer to the two questions noted above. A typical parent reaction to the videotaped class sessions was to remark (often with some surprise) that his child was learning. Parents were particularly impressed with the "patience" of the teacher in allowing their child to proceed at his own pace. In fact, a frequently observed reaction was that parents squirmed uncomfortably while their child was taking the time he needed to work out his own way of responding to the learning situation. In this way, the videotapes subtly set up the Learning to Learn approach as a model parents could emulate in their at-home interactions with the child. Finally, activities were suggested which the child could do at home and share the following day with the class. For example, a child with the help of a parent might go through newspapers and magazines cutting out "mommies and daddies," and bring his cuttings to class for discussion with the other children.

In addition to these monthly meetings, individual teacher/parent conferences were scheduled in January and June. During these conferences, parents and teachers would share what each knew about the child, his behavior at home and at school. The parents were given the chance first to speak in a conference. Teachers did not try to interpret or analyze what went on at home, but did use the parents' comments to lead into problems with the child in the classroom. (Invariably the same behavior was occurring in both places.) The discussion proceeded without parents being on the defensive, possibly because *they* were the ones who first mentioned their child's problems, not the teacher.

This approach of listening to parents, sharing experiences in and out of the classroom, and showing and explaining the program was consistent with the staff's approach with their children. Repeatedly, parents were told that their child would succeed, that the program staff believed in him, that they (the parents) were helping the program do its job. When a child was showing progress, the staff emphasized that this indicated his parents had helped bring this about and should get the credit--that they could and they *were* succeeding. Over the series of parent meetings and conferences, it became obvious to the staff that parents grew to trust them and have confidence in themselves, just as their children did.

Staff planning and in-service training. Each day, as soon as the 3-hour class was over and the children had been driven home, the director, the teacher, and the aide met to discuss the day's activities, special problems and individual progress of pupils and to plan the next day's activities. The most current videotape was viewed, and the director critiqued the lesson as part of the staff's daily in-service training. The critique served to articulate what really happened in the classroom with the objectives of the Learning to Learn Program. Where the videotape revealed inconsistencies between practice and theory, modifications in procedures were discussed, and the teacher and aide adjusted the next day's plan accordingly.

Videotapes. The use of the videotape for staff planning, in-service training, and parent education has been discussed above. Videotapes are given a special heading here to emphasize that they were a key component of the Learning to Learn Program and therefore are considered essential to any replication of the program.

Key aids and materials. The most critical materials were the language and math games and activities which helped to give the curriculum its unique character. Published by Science Research Associates, these are now provided in two kits. Each kit consists of a detailed Teacher's Manual and the items necessary for each of the sequenced curriculum activities. As described earlier, the materials were required for *all* of the small-group work. In addition, the same materials eventually became available to the entire class during the free-activity period. In addition to these special language and math materials, the following aids and materials were used: electric typewriters (e.g., for spelling exercises during free-activity time); tape recorders with earphones (e.g., for listening to stories and for recording the children's stories); blocks, writing, drawing, and painting equipment (including felt-tip markers, pencils, crayons, chalks, paints); phonograph records (e.g., for music-rhythm activities); and children's books (e.g., for story-time and home use).

Methodology: Specific

A. Language and Communication

The language-oriented games and related activities were designed to develop the child's abilities to perceive, recognize, categorize, and discover relationships. Games and activities were sequenced to gradually develop and extend the child's ability to talk about and deal with things and ideas in the abstract, or in the absence of any tangible objects or relationships. Language became a tool for thinking, reasoning, and communicating things that the child had not said or heard before. The games went beyond the teaching of language and communication skills. The child also was given opportunities for the development of strategies of gathering information, problem-solving, and decision-making. Table 6 shows the sequence of games and related activities.

B. Number and Space

The sequenced set of math-oriented games and related activities sought to develop abilities such as observation, classification, comparison decision-making, problem-solving, and organization of information. The games were designed not to teach mathematics but to develop the child's ability to discover relationships that he must be aware of to understand certain mathematical concepts. The games and activities were sequenced to follow each child's developmental pattern as he moved from elementary insight to sophisticated comprehension of basic mathematical concepts [Sprigle, 1967]. Table 7 shows the sequence (pp. 51 to 53).

Evaluation

A. Measures of Achievement

Phase I (5-year-olds, end of treatment)

The performance of the three groups was compared by means of a simple analysis of variance for each of the developmental test measures applied. As claims for cognitive benefits of the Learning to Learn Program are based mainly on performance on the Stanford-Binet Form L-M, Peabody Picture Vocabulary Test, and the Illinois Test of Psycholinguistic Abilities, only results on these measures are given here. The analysis of variance showed $p < .001$ for F values in each case. Following Bartlett's test, t tests were applied to determine the significance of the differences in mean scores for the groups (Table 8, p. 54).

TABLE 6

Sequence Chart for Language Games and Related Activities

GAMES AND ACTIVITIES	OBJECTIVES
Human Body:	
Activities (There are 7 activities constructed around parts of the body.)	The activities are sequenced so that the child first develops awareness of his body by learning the names and functions of the parts of the body. Objectives of these first activities also include providing experience in observing and applying information, and developing the ability to verbalize observations and experiences. The remaining activities review and reinforce knowledge of the names and functions of parts of the body, and provide experience in describing, in applying knowledge, in organizing information and material, and in relating an object to a picture of the object.
Face Game Boy Game	Both games are designed to develop abilities to make decisions based on previous experience and to verbalize reasoning. In addition the games provide experiences in organizing parts of a whole and in associating an object with a picture of an object.
Related Activities (There are 4 of these activities.)	In general, these related activities review or reinforce the knowledge of the names, placement, and functions of parts of the body. One of the activities emphasizes the use of previous experiences to solve problems.
Clothing:	
Activity 1 -- The Clothing Family	To introduce the names and functions of various articles of clothing; to provide experience in grouping things by a common trait.
Activity 2 -- Paper Dolls	To review names and functions of various items of clothing; to provide experience in associating an object with a picture of the object.
Clothing Game	To provide experience in organizing information to accomplish a goal; to develop the ability to make decisions using knowledge gained from previous experiences; to provide experience in organizing parts into a whole.

TABLE 6 (cont.)

Sequence Chart for Language Games and Related Activities

GAMES AND ACTIVITIES	OBJECTIVES
Activity 3 -- Pictures of Clothing	To review the names and functions of various clothing items; to extend knowledge of articles of clothing.
Activity 4 -- Organizing Clothing	To develop the ability to organize information; to provide experience in applying information to solve problems.
Related Activities (There are 4 of these activities.)	The first three related activities review names of articles of clothing and provide experience in organizing information and/or in classification. The fourth activity is designed to extend knowledge of clothing.
Properties:	
Activity 1 -- Size	To develop awareness of "long," "short," "thick" ("fat"), and "thin" ("skinny"); to develop the ability to use the senses of sight and touch to gain knowledge; to develop the ability to apply more than one concept to identify an object.
Activity 2 -- Texture	To develop awareness of "rough" ("bumpy"), "smooth," "hard," "soft"; to review "long," "short," "thick" ("fat"), and "thin" ("skinny"); to develop the ability to apply more than one concept to identify an object.
Activity 3 -- Weight	To develop awareness of "heavy" and "light"; to develop the ability to use the senses of sight and touch to gain knowledge; to review "long," "short," "thick" ("fat"), "thin" ("skinny"), "smooth," "rough" ("bumpy"), "hard," "soft"; to develop the ability to apply more than one concept to identify objects.

TABLE 6 (cont.)

Sequence Chart for Language Games and Related Activities

GAMES AND ACTIVITIES	OBJECTIVES
Properties (concluded):	
Activity 4 -- Shape	To develop an awareness of "round," "curved," and "straight"; to develop the ability to use the senses of sight and touch to gain knowledge.
Activity 5 -- Color	To give suggestions for teaching color.
Activity 6, 7, 8, and 9 -- Describing Objects	Activities 6 and 7 provide experience in comparing objects through the senses of sight and touch. All four activities provide experiences in applying knowledge to identify and describe objects.
Related Activities (There are 8 of these activities)	The related activities review concepts developed in Activities 1, 2, 3, and 4.
Food:	
Activity 1 -- Fruits	To introduce fruits; to provide experience in gathering information by using the senses of sight and touch; to provide experience in applying knowledge.
Activity 2 -- Guess the Fruit	To review fruits; to provide experience in applying knowledge of size; shape, and texture.
Activity 3 -- Guess the Fruit (Smell and Taste)	To extend knowledge of fruits; to provide experience in using the senses of smell and taste to gather information.
Activity 4 -- Vegetables Activity 5 -- Guess the Vegetable Activity 6 -- Guess the Vegetable (Smell and Taste)	The objectives for these three activities follow the same pattern as objectives for Activities 1, 2, and 3, above.

TABLE 6 (cont.)

Sequence Chart for Language Games and Related Activities

GAMES AND ACTIVITIES	OBJECTIVES
Food (continued):	
Activity 7 -- Pictures of Fruits and Vegetables	To review fruits and vegetables; to provide experience in associating a real object with a picture of that object.
Fruit and Vegetable Game	To develop the ability to make decisions based on previous experiences; to develop the ability to verbalize reasoning; to develop the ability to organize material.
Activity 8 -- Meats	To introduce meats; to provide experience in applying knowledge; to provide experience in gathering information.
Activity 9 -- Guess the Meats	To review meats; to provide experience in applying information to identify an object.
Meat and Vegetable Game Meat and Fruit Game Meat, Fruit, and Vegetable Game	In general, the objectives for these three games follow the same pattern as objectives for the Fruit and Vegetable Game, above.
Activity 10 -- Milk Products	To introduce milk products; to extend knowledge of food items.
Activity 11 -- Bread (Grain) Products	To introduce bread products; to extend knowledge of food items.
Activity 12 -- Food Family	To introduce the food family; to provide experience in organizing information.
Activity 13 -- Organizing Food	To develop the ability to organize information; to provide experience in applying information to solve problems.
Related Activities (There are 17 of these activities)	The first few of these related activities review and reinforce knowledge of fruits. (Related Activity 4 provides experience in using information about shape, color, and other characteristics to solve a problem.)

TABLE 6 (cont.)

Sequence Chart for Language Games and Related Activities

GAMES AND ACTIVITIES	OBJECTIVES
Food (concluded):	Related Activities 6-10 review and reinforce knowledge of vegetables, 11 and 12 review and reinforce knowledge of meats, and 13 deals with all three of these foods. Related Activities 14 and 15 review milk products and bread (grain) products, respectively, while 16 reviews and reinforces knowledge of food items, and 17 gives firsthand experience with food and its sources.
Furniture:	(Games and related activities constructed around the idea of houses as dwellings, the names and functions of rooms in a house, and the names and functions of various items of furniture in the rooms are not presented here due to limited space.)
Animals:	(Games and related activities constructed around tame and wild animals are not presented here due to limited space.)
Transportation:	(Games and related activities constructed around land, water, and air transportation are not presented here due to limited space.)
Applying Strategies and Knowledge:	
Families Game	To develop the ability to use previous experiences to make decisions; to provide experience in applying knowledge of properties and structure, using partial visual clues.
Categories Game	To develop the ability to use previous experiences to solve problems; to develop the ability to associate representative items with a whole classification.
Scramble I Game	To provide experience in organizing information; to develop the ability to make decisions by applying strategies and knowledge gained from previous experiences; to provide experience in expressing ideas.

TABLE 6 (cont.)

Sequence Chart for Language Games and Related Activities

GAMES AND ACTIVITIES	OBJECTIVES
Applying Strategies and Knowledge (concluded):	
Scramble II Game	To provide experience in organizing information; to develop the ability to make decisions applying strategies and knowledge gained from previous experiences; to develop experience in expressing ideas.
Clue Game	To develop the ability to use previous experiences to solve problems; to provide experience in verbalizing reasoning and expressing ideas.
Clue and Rhyme Game	To develop the ability to use previous experiences to solve problems; to provide experience in organizing information and materials.

[Adapted from the Sequence Chart in the Teacher's Manual for H.A. Sprigle's *Inquisitive Games, Discovering How to Learn*, published by Science Research Associates, 1969.]

TABLE 7

Sequence Chart for Math Games and Related Activities

GAMES AND ACTIVITIES	OBJECTIVES
Obstacle Course	To develop the child's awareness of his own body in relation to an object.
Chairs	To develop the child's ability to use kinesthetic and temporal cues in making spatial judgments.
Road Game I	To provide practice in using kinesthetic and temporal cues as an aid to spatial estimation.
Road Game II	To develop the child's ability to use visual cues and previous experience to make fine discriminations of spatial relationships (no kinesthetic cues).
Colored-Stick Activities (There are 12 of these activities)	The activities are sequenced so that the child at first is required simply to identify colors of sticks; later, to classify them by color and size; still later, to construct a sequence by size and color and finally, to develop the concepts that (1) length may be composed of different parts and (2) length remains the same regardless of the arrangement of its parts. The activities sometimes require the child to manipulate the sticks in order to learn about their characteristics. Vocabulary related to sequence (first, second, third, fourth, fifth) is also taught.
Squares Game, Equivalence, Estimation I, House Game, Steps Game (These five games each are associated with lead-in and/or follow-up activities designed to review or reinforce concepts developed in the games.)	The games and related activities are sequenced to reinforce and extend the above two concepts about length--as well as to develop the concept that length is composed of shorter lengths added together, to extend the child's ability to construct a sequence according to size and color and to provide practice in performing additive operations. For example, increasingly demanding rules for stick replacement are imposed (white sticks are used for replacement) to reinforce the concepts about length, and the child's ability to use visual cues to estimate spatial relationships also is developed to extend these concepts.

TABLE 7 (cont.)

Sequence Chart for Math Games and Related Activities

GAMES AND ACTIVITIES	OBJECTIVES
Recognizing and Writing Numerals	To develop the child's ability to recognize the numerals 1 through 9. To develop the child's ability to seriate the numerals 1 through 9. To develop the child's ability to write the numerals 1 through 9.
One to Three Game	
Version 1	To reinforce the child's recognition of the numerals 1 through 3.
Version 2	To develop the concept that the numerals 1, 2, 3 represent sets of objects.
Later-Play Activity	To reinforce the concept that the numerals 1, 2, 3 represent sets of objects.
One to Six Game One to Nine Game	The respective objectives of Versions 1 and 2 of these two games and the "later-play activity" for each are similar to the objectives associated with the One to Three Game above.
Plus and Minus Signs	To familiarize the children with the plus and minus signs.
Buy and Sell Games (There are two of these games, each preceded by a related lead-in activity.)	The games and their lead-in activities are designed to develop, extend, and reinforce (1) concepts of addition and subtraction, (2) the child's understanding of the record-keeping functions of numerals, and (3) his ability to classify according to family. Mathematical sentences are introduced.
Animal Toss Game Land and Water Animals Game	These two games, each preceded by a related lead-in activity, are designed to develop and extend the child's understanding of the concepts more than and less than and the terms plus, minus, and equals. Experiences are also provided in counting and in classification by family.
Theater Tickets Game (There are two of these games, each preceded by related lead-in activities.)	These games extend the concepts introduced in the lead-in activities, which are as follows: to introduce the concept of multiple-class memberships, to reinforce the concepts more than and less than, and to provide experience in performing the operations of addition and subtraction.

TABLE 7 (cont.)

Sequence Chart for Math Games and Related Activities

GAMES AND ACTIVITIES	OBJECTIVES
Estimation II Estimation III	These games extend and develop the child's ability to apply these previously learned concepts: (1) any length is composed of shorter lengths added together, (2) the terms more than and less than describe relationships, and (3) there are specific relationships between the lengths of the colored sticks. Experiences are also provided in making accurate spatial judgments and in solving problems which involve logical relationships. "Later-play activities" (in which color cues are removed) are designed to further extend the ability to make accurate spatial judgments.
The Two, Three, Four and Five Games	These four games each stress the development of insights into the nature of equivalence. "Later-play" activity is designed to determine the extent of transfer of learning from the four games.

[Adapted from the Sequence Chart in the Teacher's Manual for H.A. Sprigle's Inquisitive Games, Exploring Number and Space, published by Science Research Associates, 1967.]

TABLE 8

Comparison of First Posttest Mean Scores for Experimental and Control Groups, Learning to Learn Program

Test	Learning to Learn (Group A) mean N=24	Traditionally trained (Group B) mean N=24	No training (Group C) mean N=24	t value for A/B difference	p^2	t value for A/C difference	p^2
Stanford-Binet IQ	104.12	90.33	83.29	5.36	<.001	7.50	<.001
Peabody Picture Vocab.[1]	54.50	38.54	35.83	7.62	<.001	7.90	<.001
ITPA[1]							
Vocal Encoding	20.21	10.79	10.58	10.60	<.001	10.26	<.001
Visual Decoding	13.04	10.12	8.67	4.07	<.001	5.40	<.001
Auditory-Vocal Association	15.42	11.42	9.08	4.63	<.001	7.23	<.001
Visual-Motor Association	16.58	11.42	9.92	6.00	<.001	7.80	<.001

[1] Scores = number correct (or raw scores).

[2] One-tailed test.

[Source: Table 1, pp. 5-6, Van De Riet & Van De Riet, 1966.]

The t tests indicated that the program group was always significantly superior to the two control groups. Although the "traditionally" trained group out-performed the no treatment group, the differences were not nearly as great as between the program and "traditional" groups.

The practical significance of these results may be illustrated by the fact that the program group had an average IQ which was about 21 points above the no training group (which actually decreased during the year, while the "traditional" group held constant). Table 8 shows similar differences on the other measures.

Phase II (Follow-up at end of first grade)

The performance of the three groups was again compared by means of a simple analysis of variance. With the exception of the Binet Vocabulary Subtest, the resulting F values were highly significant (p usually <.001). Results of t tests are given in Table 9.

As can be seen from Tables 8 and 9, the extremely large developmental superiority which could be attributed to effects of treatment at the end of Phase I largely remained at the end of first grade, 1 year after the end of treatment. Specifically, children who had been in the Learning to Learn Program prior to entering public school (i.e., first grade) performed so much better than children without preschool experience that the difference was generally significant at the .001 level. Furthermore the Learning to Learn children also performed better than the children exposed to a traditional preschool program, with particularly large differences on measures of intellectual ability such as the WISC, Binet, and PPVT. These differences are again large enough to be of considerable practical significance. (On the other hand, follow-up comparisons between "traditional" and "no treatment" groups show that much of the difference has diminished, with no statistically significant differences remaining on some of the most important measures of intellectual functioning (WISC Verbal IQ, Binet IQ, and PPVT).

Other Evaluation Indices

The independent evaluation team reported that the evaluation instruments did not seem to measure all of the differences that were apparent between the program children and the children from the two control groups [Van De Riet & Van De Riet, 1967]. The evaluator's comments, based on observations of the children during the testing sessions, may be summarized as follows:

1. Program children were much more free and verbal in reacting with the examiners than were children in the two control groups. (In turn, children in the "traditionally trained" control group were more free and verbal in the testing situation than children from the "no treatment" control group.)

TABLE 9

Comparison of Second Posttest Mean Scores for Experimental and Control Groups, Learning to Learn Program

Test	Learning to Learn (Group A) mean N=21	Traditionally trained (Group B) mean N=20	No training (Group C) mean N=20	t value for A/B difference	p[2]	t value for A/C difference	p[2]
Stanford-Binet IQ	101.10	89.30	84.40	3.19	<.01	4.08	<.01
WISC							
Full Scale IQ	103.00	89.70	82.15	4.01	<.001	5.69	<.001
PPVT[1]	61.24	52.95	51.50	3.85	<.001	4.24	<.001
ITPA[1]							
Vocal Encoding	19.52	1.41	10.90	4.93	<.001	6.38	<.001
Visual Decoding	13.90	11.70	10.60	2.27	<.05	3.06	<.01
Auditory-Vocal Association	18.79	15.75	13.45	2.78	<.01	3.85	<.001
Visual-Motor Association	17.71	15.10	13.55	2.22	<.05	3.33	<.01

[1] Scores = number correct (or raw scores).

[2] One-tailed test.

[Source: Table 5, pp. 24-25, Van De Riet & Van De Riet, 1967.]

2. Although adequate rapport was established with all of the children (by acclimating them to the school setting, testing rooms, and examiners before testing was begun), the program children appeared to be more eager for the testing experiences which they found very interesting and challenging. They also had a much better capacity to ask appropriate, inquisitive questions. The children from the other two groups were much less inquisitive about the materials used in the testing and about the total testing situation. They also showed less confidence in their ability to solve problems.

Budget

The Learning to Learn Program operated in part with funds provided by the Office of Economic Opportunity (less than half of the estimated program cost) and with very large amounts of donated personnel time, equipment, specially developed materials, and miscellaneous services. It was estimated that $23,000 (including the value of donated items) was program cost. There were additional costs associated with the evaluation. These costs were incurred for data collection, statistical analyses, and report writing which were performed by an independent evaluation team from the University of Florida at Gainesville. The team included the two "program evaluators" and their testing personnel. (See Personnel.) If the program were to be repeated, the following major items would be required for each class of about 25. Starred items serve the program as a whole.

A. Personnel

*1 - Program director (full-time)
1,2 - Teacher (two would be ideal, for each class)
1 - Aide (one per class, in addition to the teachers)
*1 - Secretary
*1 - Bus Driver
*1 - Maid

B. Materials and Equipment

1 - *Inquisitive games, exploring numbers and space*, by H. A. Sprigle (Science Research Associates)
1 - *Inquisitive games, discovering how to learn*, by H. A. Sprigle (Science Research Associates)
4 - Electric typewriters
3 - Tape recorders (with earphones)
4 - Two-way telephones
* - Videotape equipment

Modifications and Suggestions

The evaluation team suggested that the important question to be answered in future follow-up is how this higher degree of test intelligence affects learning performance of children who had the Learning to Learn experience [Van De Riet & Van De Riet, 1967]. The necessary comparison could be made if the children from the original experimental and control groups were assigned to comparable first grade programs.

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PROJECT EARLY PUSH IN BUFFALO, NEW YORK

Introduction

Project Early Push was a prekindergarten program designed to provide disadvantaged children with a variety of experiences which are vital to later educational success. It operated in Buffalo schools from April 1966 to June 1969; this description is of the 1967-68 program only.

To be eligible for the program, children had to meet specified requirements of age and residency. In 1967-68 project pupils had to be between the ages of 3 years 9 months, and 4 years 9 months, by September 31st of the current school year and reside in the target area of Buffalo, New York.

With each successive year, the program has increased in size and scope. During the 1967-68 school year, the prekindergarten classes met in 14 public and 3 parochial schools. There were 650 children involved in the program that year, with an average attendance of about 600.

Pre- and posttesting on the Peabody Picture Vocabulary Test has shown consistent gains in IQ for project children.

Personnel

A. Project Administrator

There was one full-time project administrator who provided instructional leadership and was responsible for the day-to-day administration of all phases of the program.

B. Assistant Project Administrator

One full-time assistant administrator had the primary responsibility for supervising the program teachers and teachers' aides.

C. Psychologist

One full-time psychologist assumed overall responsibility for the mental health of the project pupils. He conducted in-service meetings for the staff on behavior-related topics, provided private counseling for children with behavior problems, observed and assisted individual teachers in promoting preventive mental-health care, conducted conferences with parents, and carried out the program evaluations.

D. Visiting Teacher

There was one full-time visiting teacher who worked between the home, community, and school to promote the social-emotional adjustment of the children. He informed families of the various community agencies and their functions, worked with the psychologist in assisting children with behavior problems, and made home visits to extend the mental-health program to the home.

E. Home-School Coordinator

One full-time home-school coordinator was responsible for stimulating parent participation in the program. He developed procedures designed to generate enthusiasm, supervised parent meetings and classroom visits, and edited the monthly parent newspaper.

F. Classroom Teachers

There were 25 classroom teachers, 12 full-time and 13 half-time. All teachers were certified by the Buffalo Board of Education.* Each full-time teacher taught two half-day classes of 15 pupils each.

G. Enrichment Teacher-Consultants

Two half-time enrichment teachers, one in art and one in music, made regular visits to each classroom to demonstrate how art and music could be integrated with the instructional program.

H. Teacher Aides

There were 20 paid teacher aides, 17 full-time and 3 half-time. All aides had completed high school and had lived in Buffalo for 2 or more years. When selecting aides, preference was given to applicants with some education beyond high school or with previous experience as nurses' aides. The aides provided pupils with extra individual attention.

I. Clerical Assistants

There were two full-time clerks who handled all typing, record keeping, and other clerical activities related to the program.

In addition to the above, various paid consultants and demonstration teachers assisted in the bi-monthly in-service meetings for teachers.

Methodology: General

The overall goal of Project Early Push has been defined as follows:

> "The program was designed to bridge the gap betw[illegible] the culturally different environment of the children and the requirements of the school experience they would encounter in the primary grade classroom (Buffalo Public Schools, 1967)."

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*Buffalo certification is by examination. All applicants must have a college degree, but hours of credit in education are not required. Those teachers who do not have education credits must take 6 hours of education courses during the year.

Twelve specific objectives were identified as necessary components of this goal. They were:

1. Nurturing a healthy self-concept.
2. Improving perceptual, discriminatory, labeling, and concept-building abilities.
3. Enlarging understanding of the environment.
4. Encouraging self-expression.
5. Developing body coordination.
6. Encouraging interaction with others.
7. Stimulating verbal communication.
8. Providing meaningful experiences with literature.
9. Developing auditory discrimination and appreciation.
10. Encouraging appreciation of a well-ordered environment.
11. Gaining the interest, support, and involvement of parents in the progress and welfare of their children.
12. Improving teacher as well as lay understanding of culturally deprived children.

The procedures used in the program were based on a study of practices which had been found to be effective in other preschool programs as well as innovative procedures developed under the aegis of Miss Ruth Flurry, supervisor in the Bureau of Child Development and Parent Education of the New York State Education Department.

The classes were limited to small numbers of children (average size - 15) so that the teachers could recognize the strengths and needs of their pupils. Each classroom was supplied with equipment and materials from a standard list which included 19 different articles of furniture, 16 housekeeping items, 27 musical instruments, 2 audiovisual materials, 5 locomotor toys, 4 types of woodworking equipment, 3 pieces of science equipment, and 6 miscellaneous items. The project teachers arranged these into a well-ordered environment within which the pupils were provided with a generally unstructured program with as few formal lessons as possible.

The class day was divided into a number of major periods. During the first period the children were free, for the most part, to choose those activities which interested them most. The teachers observed their pupils' actions and attempted to capitalize on any potential learning experiences. The major portion of the program's experiences took place during this period, which could last up to 2 hours. Activities which may have been included were: manipulation of objects of differing materials, textures, sizes, etc.; independent play activities such as block building, playing store, etc.; creative activities such as painting, working with clay, etc.; large muscle activities such as climbing, lifting, etc.; and experiences in science such as making collections and growing things. Records were kept of each child's activities so that he could be directed toward experiences in all aspects of the program, if necessary.

Following the initial work-play period, the project pupils were provided with a daily "extended snack." The snacks were supplied by the project at a cost of 15¢ per day per child. Each included fruit, vegetables, meat, milk, and other foods (which were prepared by the teachers and teacher aides) to provide both exposure to a greater variety of foods and ample nutrition.

A rest period followed the daily snack. After the rest period, the children participated in one or more group activities such as musical and rhythmic activities, discussions and simple games, or listening to stories, before going home for the day.

In addition to the regular classroom activities, the program included an extensive schedule of field trips designed to broaden the pupils' experience with their environment. Short trips were made into the immediate neighborhood to view such things as the fire station, a house being built, or a parking garage. Longer trips were made by bus to places like the zoo, a farm, or a park.

Particular emphasis was placed on parent participation in the program. Parents were encouraged to make class observations or to participate in classroom activities at any time during the year. Individual parent-teacher conferences were requested twice yearly and two parent-teacher workshops were held to provide parents with suggestions for extending learning to the home. A general meeting was held in each school at which child development was discussed with pictures of the current pupils used as illustrations. A parent council composed of volunteer representatives from each of the participating schools met three times each year to draft recommendations for the future direction of the program. In addition, a monthly parent newspaper was published containing articles submitted by parents as well as those written by project staff and consultants.

In-service meetings for teachers and teacher aides were held on an average of two meetings a month. For most of these meetings there was a guest speaker, often an educator. Twice during the year there were half-day teaching demonstrations which the teachers and teacher aides attended. In addition to the meetings and demonstrations, a reference library was available to the teachers. Occasional memos and papers were also sent out containing articles by the project administrator or the psychologist.

Methodology: Specific

A. Among the innovative procedures in the project was the Art Program. It was designed by the staff with the project psychologist's consultation to foster self-expression and contribute to the development of self-concept. Examples of the children's work which demonstrated the growth that had taken part during the program were exhibited at the city art gallery.

B. Typical examples of the menu for the daily snacks were: hot tuna fish casserole, fruit cup, and milk; or scrambled eggs, sausage, orange sections, and milk.

C. An issue of the Parent News might contain the following articles:

"We Welcome Your Visits" - an invitation to the parents to make classroom visits (printed in both English and Spanish).
"Art in the Home" - a parent's description of the ways in which common household items can be used as art materials.
"Visiting Teacher Service" - an explanation of the services provided by the visiting teacher.
"Our SPCA Trip" - a parent's description of a recent field trip.
"Our Busy Four-Year Olds" - a discussion of the learning characteristics of four-year olds taken from an article by the New York State Education Department.
"Improved Dental and Medical Services" - announcements of the dates and locations of health exams.
"Coming Events" - a listing of the dates of parents' meetings to be held at each school.

D. The following is an example of the professional papers sent to teachers and teacher aides as part of the continuous in-service training. It was written by the staff psychologist and entitled,"An Area of the Curriculum that Deserves Daily Attention."

> It is important to us, as educators, to continuously gear our efforts toward perceptual areas. Most experts in our field agree that children enter school with visual and auditory perceptual deficits which cause academic failure. The most significant contributions that we can make toward improving the educability of our children is to stimulate their senses by encouraging the use of the eyes, nose, fingers (touch), etc. in class activities.
>
> Whenever possible, we should try to bring in as many of the sensory modalities as we can. For example, in discussing the difference between an orange and a banana we can point out that they have different colors (eyes), different sizes (eyes), and different shapes (eyes). Their names are very different. They sound very differently (ears), ba-na-na, or-ange. They smell differently (nose). They feel differently (touch). To culminate the discussion the teacher can cut the fruits and distribute one small piece of each to each child and they can "taste" the difference.
>
> We should always try to keep in mind the following statement made by Dr. Ray H. Barsch.
>
>> 'If we prepare a child sufficiently well to be a discriminator and a differentiator of auditory stimulation; if we arrange for him to have sufficient acuity and distinctiveness in visual discrimination; if we teach him how to perceive differences and similarities, visually, auditorially, kinesthetically and tactually; if we bring him to that first grade with all systems prepared and ready to go, we are convinced - at this point - that he will not fail the curriculum.'

E. The following materials were supplied for each classroom.

Furniture

Block cart
Fold-a-way storage cabinet
Kindergarten chairs
Kindergarten tables
Locker units
Metal and fiberson table and two chairs
Rockers
Rocking rowboat
Teacher's desks
Teacher's chairs
Variplay triangle set
Storage shelves
Room divider and pegboard screen

Housekeeping

Child size doll bed
Doll carriage
Double-decker doll beds
Dresser without mirror
Hutch cupboards
Ironing boards and iron
Metal dress-up mirror
Refrigerator
Sink
Stove
Metal wall mirror

Art

Easel

Woodworking

Kindergarten workbench
Set of 15 tools
Tool cabinet
Workbench and vise

Science

Animal cage
Aquarium
Terrarium

Climbing

Crossing ladders
Nesting bridges

Locomotor

Ride 'Em Horse
Steel platform truck
Topper truck
Tricycles
Wagons

Music

Autoharp
Barrel drum
Cluster bells
Castanets
Chinese skin tom-tom
Cymbols
Decorated Mexican gourd maracas
Economy tone block and beaver
Eight-note diatonic step bells
Hand snare drum
Jingle taps
Korean temple bells
Medium tom-tom
Piano
Rhythm sticks
Sand blocks
Single bell on handle
Small tom-tom
Tambourines
Temple block floor stand
Tenor drum with handle
Triangle
Twin bongo drum
Wood blocks
Wrist bells

Library

Library display unit

Nutritional

Electric refrigerator
Hot place

Audiovisual

Tape recorder

F. A paperback book library was supplied for each classroom.

Evaluation

A. Measures of Achievement

The Peabody Picture Vocabulary Test was used to determine gains. The tests were administered by the program psychologist to children who had been selected to represent the project population. Form B of the test was used as a pretest in October and November, with Form A serving as a posttest in May and June.

In 1967-68 three sample children were chosen from each class in the program. A completely random selection procedure was used for the first half of the sampling. When it became apparent that the sample would contain an unequal distribution by sex, the procedure was adjusted to randomly select two girls and one boy per class for the remainder of the sampling. A total of 48 boys and 48 girls were chosen for pretesting. Of these, only 35 boys and 24 girls were also available for posttesting.

Table 10 shows the results for the 59 pupils who were administered both tests. All entries in the table have been rounded off to the nearest whole number. As can be seen, the sample pupils gained an average of 11 months in mental age during the 7 chronological months between testing, for a mean gain of 10 IQ points and 10 percentile points.

TABLE 10

Mean Gains in Chronological Age, Mental Age, IQ, and Percentile Rating for a Sample of 59 Pupils in the Early Push Program 1967-68

		Peabody Picture Vocabulary Test		
	Mean CA	Mean MA	Mean IQ	Mean Percentile
Pretest (Oct.-Nov. '67)	4 yrs. 4 mos.	3 yrs. 4 mos.	76	18
Posttest (May-June '68)	4 yrs. 11 mos.	4 yrs. 3 mos.	86	28
Gain	7 mos.	11 mos.	10	10

Table 10 presents an analysis of the PPVT scores broken down by sex. As indicated in the table, the boys gained an average of 8 IQ points and the girls an average of 12 IQ points.

These results are consistent with those found in 1966-67. In all cases the boys' pretest average was slightly higher than the girls' but the girls gained more from pre- to posttest then the boys.

TABLE 11

Mean Peabody Picture Vocabulary Test Scores for Boys and Girls in Project Early Push 1967-68

	Pretest		Posttest		Mean Gain
	Mean	SD	Mean	SD	
Boys (N = 35)	77	18	85	16	8
Girls (N = 24)	75	17	87	20	12
Total sample (N = 59)	76		86		10

B. Other Evaluation Indices

Since parent participation had been designated as a major contributor to the success of the program, an additional analysis was made of the 1967-68 results in terms of the children of active vs. inactive parents. An active parent was one who attended at least three parent meetings and made at least five classroom visits. Inactive parents had not attended any parent meetings and had made only two visits to the classroom. The analysis showed that pupils of active parents made greater gains than those of inactive ones.

The program received strong support from all groups involved. Teachers kept anecdotal records of pupil behavior which indicated that the program had produced noticeable intellectual, emotional, and social growth. Each year there was an excess of applications for teaching positions, and less than the usual staff turnover. More than half of the teacher aides returned to school, most to prepare to teach in the program. All attributed their desire for more schooling to their experiences in Early Push. Parent participation was 85% during the 1966-67 school year and 95% during 1967-68; 70% attended meetings. Without any recruitment procedures, all classes were filled within the second week of the 1968-69 program and plans were being made to expand the program because of the steady increase in demand.

Both the Parent Council and the total staff answered questionnaires about the program. Many of the respondents wished to see the program expanded.

Budget

The program was financed in full by funds from ESEA Title I grants.

The total operating cost for the most recent school year (1967-68) was $342,316; 90% was spent on salaries, and the rest on teaching supplies and equipment. The per pupil cost for that year was approximately $550.

The main items of expenditure were:

A. Personnel

1	Project Administrator	full-time
1	Assistant Administrator	full-time
1	Psychologist	full-time
1	Visiting Teacher	full-time
1	Home-School Coordinator	full-time
25	Classroom Teachers	12 full-time, 13 half-time
2	Enrichment Teachers	half-time
20	Teacher Aides	17 full-time, 3 half-time
2	Clerical Assistants	full-time
	Consultants	bi-monthly

B. Equipment

Each project classroom was supplied with the following:

19 Different articles of furniture, such as tables, chairs, storage cabinets, room dividers, etc.
16 Housekeeping items, such as doll beds, hutch cupboards, ironing boards, etc.
27 Musical instruments, such as autoharps, castanets, tambourines, etc.
2 Audiovisual items: phonograph and tape recorder.
5 Locomotor toys, such as tricycles, trucks, etc.
4 Types of woodworking equipment, such as tool sets, workbenches, etc.
3 Pieces of science equipment, an animal cage, an aquarium, and a terrarium.
6 Miscellaneous items, including easels, ladders, bridges, a library display unit, a refrigerator, and a hot plate.

C. Supplies

Classroom supplies, such as paper and paint, were provided for each classroom.

D. School Snack

Each child was provided with a daily extended snack at a cost of 15¢ per day per child.

Modifications and Suggestions

The project administrator suggested the following alterations in the existing program:

1. Solicit even greater parent participation in the program so that the learning initiated in the classrooms will be continued in the home. 1968-69's pilot study on the effects of parent participation showed definite benefits in terms of cognitive growth, therefore this aspect of the program will be given major emphasis in the years to come.

2. Add a week of orientation meetings before school in the fall and increase the number of regular in-service meetings by adding sessions held on Saturdays to avoid interference with classroom duties.

3. Drop the special visits by music and art specialists and replace them with an enrichment program which is more closely integrated into the regular classroom routine.

4. Drop the formal scheduling of such activities as snack time and rest time and replace it with individualized schedules based on each child's interests and desires.

5. Add a program assistant who will be responsible for developing specific, structured learning activities to be used in the classroom.

6. Increase the size and scope of the evaluation program to include the results of 400 to 500 children as measured by both the Peabody Picture Vocabulary Test, and the Wechsler Pre-Primary Scale of Intelligence, with additional analyses devoted to the effect of factors such as parent participation on the results.

These suggestions were implemented in the 1968-69 program.

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THE AMELIORATIVE PRESCHOOL PROGRAM
IN CHAMPAIGN, ILLINOIS

Introduction

This program* was aimed at providing improved educational intervention for disadvantaged preschool children. It offered a highly structured curriculum in which language development was fostered through verbal responses being made repeatedly by the pupils in a productive, meaningful context based on a special game format.

The pupils in the program were selected from families in the economically depressed neighborhoods of Champaign-Urbana, a community of 100,000. Many of the families were receiving public aid. Parental consent was obtained for each child to attend the program; only children with no preschool experience were considered. About two-thirds of the pupils were Negro, and the remainder were Caucasian. Half of the pupils were girls.

The program began in 1965, when 30 pupils were selected (from a pool of 75) to receive treatment for 1 year immediately prior to entering kindergarten. On the 1960 Stanford-Binet Intelligence Scale, one-third of the pupils in each class of 15 had IQ's over 100, one-third were between 90 and 99, and one-third were between 70 and 89. This group of 30 received the program for the academic year and received a supportive program 1 hour a day while in kindergarten.

Other groups later received the program to test its effectiveness a) when initiated with 3-year-old children and maintained for 2 years, b) when supported by a mother-involvement project, c) when applied by paraprofessionals, and d) when given to low IQ children.

The crucial evaluation of the program's success was carried out when the pupils were at the end of first grade. At that point their performance on six standardized measures yielded higher scores than that of comparable pupils who had attended a traditional preschool. The program pupils performed well above grade level on the California Achievement Tests in reading, language, and arithmetic. Evaluations of the other groups who received the program indicated that an earlier and longer intervention and the mother-involvement modifications did not enhance the program results, but that adult paraprofessionals could effectively implement the program and that low IQ children could benefit considerably from it.

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* This program was part of a broader design which included five interventions. Two of these effected greater changes, compared with the other three; one was the Ameliorative Program, the other the Academic Preschool, described in the 1968 AIR study (Hawkridge, D. G., Chalupsky, A. B., & Roberts, 1968).

Personnel

A. Project Director

A Professor of Education at the University of Illinois, the project director held the EdD degree, and had many years of experience in early childhood education. The Ameliorative Program was only one of her responsibilities, but she had the task of supervising its general operation as well as selecting and training teachers, and designing the evaluation.

B. Teachers

Since each class met for only a half-day, the three teachers required for each class were equivalent to 1.5 full-time personnel. Those employed in the program were fully trained, with experience in early childhood teaching. With one exception, all were female. They averaged about 35 years of age. Each taught a group of five children at a time in the program. In-service training was provided for the teachers by weekly staff meetings.

C. Statistical Consultants

Several members of university communities were consulted as to the soundness of the statistical design and analysis of the data obtained from the Ameliorative Program and the other interventions.

D. Qualified Psychological Examiners

The children in the program were tested by school psychologists from outside the program who were fully qualified psychological examiners normally employed by the public school system. These examiners were not aware which children belonged to which group.

A public health nurse assisted with health examinations and immunizations. A social worker was available to handle special family problems for children referred by the teachers, but only worked about 1 day a week for the program. This applied to all groups in this program.

Methodology: General

The basic assumption of the Ameliorative Program was that if disadvantaged children received treatment in a structured preschool providing much experience in verbalization associated with manipulative activities, these children would be able to benefit sufficiently from traditional kindergarten (plus a 1-hour a day supportive program) to be ready for first grade.

The children in the program were bussed to school, where they attended about 135 minutes each day for about 8 months. They were taught in classes of 15. Each class had three teachers, of whom one was qualified to teach preschool; the other two were college graduates experienced in working with young children, and certified as teachers. One teacher served each of the IQ groupings (already described above).

The curriculum was based on the skills and concepts required by pupils in early elementary school; a deliberate attempt was made to prepare pupils for what they would meet when they left the program. The starting point for these activities was the diagnosis of each pupil provided by the pretest battery of standardized tests (Stanford-Binet, ITPA, PPVT, and Frostig). The language processes embodied in the ITPA were incorporated into daily lesson plans.

A typical day was split into three formal learning periods, devoted respectively to mathematical concepts, language arts (including reading readiness), and science plus social studies. Cubicles supplied with materials for studying each of these were situated off a main assembly room. Each teacher moved from one cubicle to another with her group of five children, the group staying with her throughout the day. In addition to the three formal periods, a music period, directed play time, and "juice time" completed the school day. During the music and directed play periods, children were free to move out of their own teacher's group. The directed play made _no_ use of outdoor play equipment or traditional preschool toys, but stressed visual-motor activities such as puzzles, blocks, clay, nesting and stacking toys, and pounding sets. The directed play was used to reinforce concepts taught in the formal periods.

Because each teacher had only five pupils, she was able to provide plenty of feedback to her charges. She corrected incorrect responses immediately, often through repeating model sentences or through duplicate layouts of simple manipulative materials. She praised correct responses consistently. She reviewed frequently the ideas and skills already taught, providing the children with many chances to use what they had newly learned.

Methodology: Specific

Karnes (1969) has summarized some of the specific activities within the program:

> The general goals of the social studies and science curriculum were to teach useful vocabulary, to develop skills of classification, to provide simple experiences in developing sensory discriminations and in observing natural phenomena. The curriculum began with a unit on body awareness and self-concept developed through the use of body exercises, songs, pre-cut unassembled figures, and body outlines of the children. A unit on family members and immediate home environment followed which used integrated pictures, rubber play people, and family puppets; clothing cut from catalogs and sorted according to body parts, family member, or season; furniture items cut from catalogs and sorted according to type or appropriate room; go-together pictures such as a hand and a mitten, a chair and a table. A kitchen science unit, through the demonstration of simple scientific principles, provided opportunities for careful observation and verbalization of what had been seen, heard, tasted, or touched. Basic vocabulary included _melt_, _boil_, and _freeze_; _dry_ and _wet_; relative temperature words such as _cool_, _warm_, and _hot_; _dissolve_; taste words such as _sweet_, _sour_, and _salty_. Additional units in this curriculum were germination of seeds and

plant growth, farm and wild animals, fruits, vegetables, community buildings and workers, vehicles, weather, seasons, and time sense.

Objectives of the math curriculum involved the development of basic number concepts, appropriate manipulative skills, and a useful vocabulary. The general areas included the identification of five geometric shapes; one-to-one matching and its relationship to copying patterns, matching quantity, and establishing sets and verifying their equivalency; dimensional terms and seriation; counting as a functional concept; the introduction of numerals as visual symbols; and beginning addition and subtraction with manipulative objects such as popsicle sticks, bottle caps, and peg boards.

Multiple copies of inexpensive books were the most important instructional material in the language arts and reading readiness curriculum. As the teacher read, each child held his own copy of the book; he learned to hold the book right-side-up, to turn the pages singly and in sequence, to associate the pictures with the story being read, to develop left-to-right progression, and to associate the printed symbol with meaning. In addition, the small group storytime provided opportunities for reinforcing and elaborating upon vocabulary previously taught; for both short and long range memory activities; for sequencing events to show cause and effect and time relationships; for making inferences and, on occasion, divergent responses. Finally, as the story was read, the child heard acceptable syntactical models and the familiar constructs of the language. He absorbed the rhythms and stresses of standard, informal English. This curriculum also included activities which developed visual-motor coordination and which emphasized the rather fine visual and auditory discriminations requisite for reading readiness.

Language development received major emphasis throughout the day and especially during the three structured periods. Verbalizations in conjunction with the manipulation of concrete materials were considered to be the most effective means of establishing new language responses. The game format (card packs, lotto games, models and miniatures, sorting, matching, and classifying games) created situations where verbal responses could be made repeatedly in a productive, meaningful context without resorting to rote repetition; often the child could visually and motorically assess the correctness of his thinking before he made an appropriate verbalization. If the child was unable to make a verbal response, the teacher supplied an appropriate model; when he began to initiate such responses, the teacher had the opportunity to correct, modify, and expand his verbalizations.

Evaluation

A. Measures of Achievement

All preschool groups in the program were tested. In the case of the group followed to the end of first grade, testing was conducted annually. The results of that evaluation are summarized in Table 12 and compared with results for a Traditional Preschool Group.

TABLE 12

Scores Obtained by an Ameliorative Preschool Group and a Traditional Preschool Group at the End of First Grade

Test	Ameliorative Group (N=24)	Traditional Group (N=25)
California Achievement Tests (mean grade equivalents)		
Reading	2.1	1.7
Language	2.1	1.7
Arithmetic	1.8	1.5
Stanford-Binet Intelligence Scale (mean intelligence quotients)	104	100
Illinois Test of Psycholinguistic Abilities (mean language age in months below chronological age)	-5.5	-6.1
Frostig Developmental Test of Visual Perception (mean perception quotients)	105	97

The scores shown in Table 12 were included in an analysis of the results of the Ameliorative Group, the Traditional Group and the Academic Preschool Group (also known as the Direct Verbal Group). Analysis of covariance indicated that the three groups were significantly different in the results they obtained on the California Tests. The results of the Academic Group were very similar to those of the Ameliorative Group, and both gained higher scores than the Traditional Group. Hence it is reasonable to assume that the Ameliorative Group scored significantly better on the California Tests than the Traditional Group. This conclusion is supported by t tests of the significance of the differences between the two groups' means. The two groups did not differ significantly at pretest in Stanford-Binet IQ means ($p > .50$), while they did differ significantly at posttest in California Test means ($p < .02$ for reading, language and arithmetic).

The actual grade level for both groups in Table 12 was 1.7; the Ameliorative Group performed well above that level on the California Tests, providing additional evidence of the program's success. The Traditional Preschool Group was judged to be an appropriate comparison, having been drawn from the same pool of pupils and similarly stratified on intelligence; the groups had comparable race and sex ratios too.

When the basic Ameliorative Program was applied over 2 years, the progress made in 2 years by 13 children who entered at age 3 was not superior to that made by children in the 1-year group, who entered at age 4.

A group of 31 children in the Ameliorative Program whose mothers attended meetings to learn how to teach their children at home were compared with another group of 27 children whose mothers were not involved in this way in the program. The involvement did not result in better performances by the former group.

Other groups (total N=33) were taught the Ameliorative Program by paraprofessionals instead of trained teachers. These groups achieved broadly similar results on posttesting (at the end of the preschool year) to those of the group taught by professional staff.

A group of 15 children with a mean Stanford-Binet IQ of 66 received the basic Ameliorative Program, implemented by trained teachers. In 9 months of treatment, the group gained an average of 19 months in mental age, and an average of 12 months in language age. This result indicates the success of the program with low IQ children.

Modifications and Suggestions

Through repeated applications of the treatment with various groups as detailed under Evaluation, the basic program evolved over 4 academic years 1965-66 through 1968-69. Further modifications (incorporating the Guilford model for creativity and the Head Start framework) are in process.

Budget

Since the work was carried out in a university setting, costs were in some cases lower than in a public school system. The estimates given here refer only to the preschool year of the program (30 pupils), when one full-time head teacher and four half-time assistants were employed in the classroom at a cost of about $17,000. The allowance for instructional supplies and equipment was $1500. Other costs were incurred for supervisory and research personnel, but it is difficult to estimate the exact expenditure since these people were engaged in other work as well. Curriculum development cost estimates are not included here although they might be incurred by schools attempting to replicate the program.

The cost per child for replicating the program was estimated by the program director as $620 per annum.

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THE MALABAR READING PROGRAM FOR MEXICAN-AMERICAN CHILDREN IN LOS ANGELES, CALIFORNIA

Introduction

This program attempted to raise the reading levels of Mexican-American children through individualized instruction, self-instruction, curriculum change, parent participation, and cultural activities.

The children were at preschool through third-grade levels, attending the Malabar Street School in East Los Angeles. This school is situated in a low socio-economic area, characterized by families with Spanish surnames; 90% of the children who attended the school are of Mexican descent. Family wage earners have such jobs as truck driving, factory or clerical work, and selling, very few being skilled or professional workers. The school has an enrollment of about 1,350, and experienced quite a high level of pupil and teacher turnover during the period of the program. Educational attainment of the pupils in the school was extremely low at the start of the program.

During the 1964-65 school year, the program began as a pilot project. Although major difficulties were experienced during subsequent years, successive waves of children were introduced into the project until in 1969 all children through the third grade were included in the statistics, while those in grades four through six were also being influenced by the program as their teachers watched what was happening in the lower grades.

The evaluation of this program is restricted to three waves of children whose performance was measured by the Stanford Reading Test, the California Reading Test, the Pintner-Cunningham Intelligence Test, the Public School Primary Intelligence Test, and the Sight Vocabulary Test. Evidence of the success of the program is to be found in the improved national status of successive waves of pupils on these tests.

Personnel

A. Project Director

An associate professor of education at one of the state colleges in the area, the project director has been associated with the program since its inception. She is now on permanent release to the school to act as director. She has many years of classroom experience, as well as a PhD in education.

Her duties are wide-ranging, including not only the general supervision of the program, but also the planning and carrying out of the research dealing with various aspects of language development.

B. Co-Directors

The principal of the Malabar Street School and the executive director of the Youth Opportunities Foundation, a Mexican-American institution, are both co-directors of the program. The principal has done 2 years doctoral study, and holds a Masters degree in administration. The other co-director was a professional engineer who also worked as chief executive of the Foundation.

Both co-directors were responsible for securing community participation and support, and worked with the director in the design and implementation of the project. Together with the statistician and the project director, the co-directors formed a planning and supervising team.

C. Statistician and Evaluator

Two professors of education at one of the state colleges in the area were responsible for much of the evaluation and all of the statistical analysis connected with the program. One served the first year of the study and the other for the two succeeding years.

D. Teachers

Almost all the teachers held full credentials. One-tenth were Mexican-American. In 1969 about half had less than 3 years teaching experience, while a few had as many as 10 years experience.

All were regular teachers in the school, and were paid out of local district funds. They taught their usual classes but in unconventional ways as provided for by the program.

Other personnel who became involved in the development of the program included nonprofessional school staff, parents, and other volunteers and visitors who assisted the children to develop language and reading skills by talking with them and reading with them at every available opportunity.

Methodology: General

The program was based on the assumption that Mexican-American children should be helped in school to search for structure in what they are trying to learn. It was assumed that the children would become capable of self-regulating learning behavior only when they had learned to organize their cognitive field. The search for structure was to proceed in the development of both reading and oral language skills. The exact approaches and methods to be used were developed over a period of years in the program. The resulting classroom learning has been characterized as rigorous, individualized, self-actualizing, exploratory, and particularly Gestalt-oriented.

Amsden (1968) has summarized five major aspects of the instructional program in tabular format, as reproduced below. In Table 13 typical writing activities are shown for each level, together with anticipated changes in self-concept which should accompany the activities. The reading series on which the table is based is the Ginn Basic Readers.

TABLE 13

A Summary of Writing Activities, and Anticipated Concomitant Changes in Self-Concept, in the Malabar Reading Program

LEVELS	STORY WRITING	SELF-CONCEPT
Preschool-Kindergarten	Scribbles. Writes own name.	I am a person who handles paper and pencil. I can write. I can write my own name. I like my name. I am a person who likes to write.
Children reading pre-primers (1, 2, & 3)	Needs to trace even short words many times before he is able to write them correctly. May eventually need adult help to finish a really long word at these early stages. Usually, no story-line. Child writes isolated words only.	I can write about anything I want. I can learn to write many interesting words. I understand the meaning of everything I choose to write. I am glad I am a person who knows how to write so well.
Children reading primer	Learns words faster, but still needs to check details of even comparatively short words. Begins to write short one-sentence "stories"	I can write more and more every day without asking any adult how to do it. Other words are in my own private word box. Because I have always been a person who is interested in words, I am particularly interested in the special words that are in my word box that I have chosen. I can also sound out a great many words that I do not know, or that are not in my word box. I can write real stories now.

TABLE 13 (cont.)

LEVELS	STORY WRITING	SELF-CONCEPT
Children reading 1st Reader	Learns even quite complicated patterns quickly and accurately.	I am a person who can write a very great deal without asking other people how to spell the words. I am very proud that I am a person with this great power. I can write long stories.
Children reading 2nd Reader	Child has only to look at relatively complicated words in order to spell them immediately without tracing. Child has built up a repertoire of words he can write alone. Needs to trace only a relatively few really hard words. Child writes stories of several pages or chapter.	Since I am a person who can write real books myself, I realize that real people write books. I am very much interested in the people who write the books I read, for they, like me, are writers.

[Source: Chart 2, pp. 24-25, Amsden (1968).]

In Table 14 activities related to phonics are shown for each level again with anticipated changes in self-concept which should accompany the activities. In Amsden's (1968) table, further examples are given of words to be used.

TABLE 14

A Summary of Activities Related to Phonics,
and Anticipated Concomitant Changes in Self-Concept,
in the Malabar Reading Program

LEVELS	PHONICS	SELF-CONCEPT
Preschool and Kindergarten Children	Learns that (1) his name is a word, (2) words are made up of letters, (3) letters have individual identifiable sounds and corresponding graphic forms. Learns alphabet orally by rote. Recognizes names of individual letters by sight and sound.	I am a person with a name. My name is important to me and to other people. I can hear my name. I can say my name. Other people can say and hear my name. I can write my name and read it. Other people can write and read my name. Letters form my name. I like the letters in my name. I am a person who likes letters. There are many letters. Some of them are not in my name. Some of these letters that are not in my name are in the names of my friends. Because I am already a person who likes letters and knows many of them, I am interested in the names of my friends. Letters can be arranged in an alphabet. It is easy to find these letters if you know the alphabet. Since I am a person who likes letters, I like to know the alphabet.
Children Reading First Pre-Primer	Learns sounds of letters (1) in isolation and (2) in initial position of words. The letters are learned in the following order:* ltirmfn ocashed puwgbj vyzxgk	Letters make up other words besides names. Because I am a person who is interested in all of these letters of the alphabet, I am a person who is interested in the words these letters make. I can hear the way they sound at the beginning of words.

*Letters have been given in this order because (1) distinguishing between the sounds of these letters is relatively easy, (2) distinguishing between the form of these letters is relatively easy, (3) these letters are relatively easy to write, (4) these letters are most quickly useful in writing large numbers of simple words using the "short" sound of the letters, (5) these letters are the ones on which the children may most profitably work independently from the beginning of the program with minimum chance of error.

TABLE 14 (cont.)

LEVELS	PHONICS	SELF-CONCEPT
Children Reading Second Pre-Primer	Reads and writes by sound two- and three-letter words, changing initial letter, e.g., bat, cat. Reads and writes by sound two- and three-letter words (short vowels only), changing terminal letter, e.g., can, cap. Reads and writes by sound two-and three-letter words (short vowels only), changing both initial and terminal letters, e.g., sad, lap. Reads and writes by sound three-letter words (short vowels only), changing medial letter, e.g., bad, bed. Reads and writes by sound three-letter words (short vowels only), changing all the letters at will, e.g., mad, him.	Now that I know so much about letters (their shapes, names, and sounds and which come at the beginning of words), I can even write, by sound, words which I may not have seen in print. Since I already know so much about the way letters make up words, I can even sound out some words that I have never seen before. Because I am a person who has long been interested in words and letters, I am very pleased to see that I can sound out more and more of the words I see in print. I can write many words I have never seen before without asking anybody how to do it. I am greatly reassured to sense my growing independence and power as a learner.
Children Reading Third Pre-Primer	Reads and writes by sound words having more than three letters, adding letters in terminal positions first (short vowels only), e.g., fat, fast. Reads and writes by sound (short vowels only), words having more than three letters, adding letters in initial positions, e.g., tap, trap.	Now my world of words extends to include words that have a great many letters in them. Since I am a person who has long been interested in letters and words, this is an exciting discovery. I find that I am more powerful than I thought I was.

TABLE 14 (cont.)

LEVELS	PHONICS	SELF-CONCEPT
Children Reading Third Pre-Primer (cont.)	Reads and writes words by sound (short vowels only) having many extra letters added in any position, e.g., stamp, west.	
Children Reading Primer	Reads and writes words by sound in which some letters combine to form digraphs and trigraphs (1) in initial or terminal position, e.g., this, them. (2) in all positions, e.g., with, that.	Now I see that the world of words is indeed a complicated and sometimes confusing world. Since I am such a competent person who has long been interested in letters and words, and who has had great success in handling them, I can also handle this new dimension, although it is very difficult.
Children Reading First Reader	Learns to add silent "e" at end of word to form new word, e.g., mad, made. Continued experience with silent "e" keeping vowel constant but introducing more complexity into rest of word, e.g., plane, flame. Interchangeable use of all other previously learned letters and letter combinations, e.g., trumpet, twine.	This indeed is a puzzle. I find that I cannot always take the letters in a word in sequence when sounding out a word. I must jump to the end of the word and then back to the middle when sounding out some words. It is almost enough to destroy my new-found faith in the reliability of sound sequence of letters in words. I have found in past experience with letters and words that, although technical problems are sometimes momentarily disturbing, I am able to solve them. I have already noticed in my reading how many words have "e" on the end. I am eager to learn the rules that govern them.
Children Reading Second Reader	From this point on, letters are presented in combinations useful for sounding out words only. These are presented in decreasing order of frequency of occurrence in reading.	Now that I have understood silent "e", I find that I am a person who can understand even very complicated and confusing graphic representations of sound patterns in words.

TABLE 14 (cont.)

LEVEL	PHONICS	SELF-CONCEPT
Children Reading Second Reader (cont.)		Any other graphic representations of sound patterns will, of course, be very easy for a person like me to understand and remember.

[Source: Chart 3, pp. 29-33, Amsden (1968).]

In Table 15 word discrimination activities are tabulated for each level, with anticipated changes in self-concept, as before.

TABLE 15

A Summary of Word Discrimination Activities, and Anticipated Concomitant Changes in Self-Concept, in the Malabar Reading Program

LEVELS	WORD DISCRIMINATION	SELF-CONCEPT
Preschool and Kindergarten	Recognizes graphic form of own name and the names of his friends.	I am a person with a name that can be written. My written name can be put on my lunch bag, my toys and my chair to show which is mine. I am a person who can read my name. I am a person who likes to see my name written on things. I am a person who can read the names of some of my friends when I see them on their things.
Children Reading Pre-Primer 1, 2 & 3	Guesses wildly, e.g., "dog" for "car," based on neither semantic nor configuration patterns. Confuses words within semantic pattern, e.g., "dog" and "cat." Confuses words within similar configuration patterns, e.g., "dog" and "big." Reads exceeding slowly, word by word.	Since I am a person who can read my own name and the names of my friends, I can try to read many other words. They often look very much alike, though, and I often get mixed up.
Children Reading Primer	Increases speed and accuracy of identification within similar configuration patterns. Example: "and-said." Combines words into short semantic units. Example: "said Jane," "to the house." Shows tension and concentration in behavior. Shows wide variation in tempo of reading. Tends to loud vocal reading.	Now I can see that most words really do not look as much alike as I thought. I am the kind of person who can read many words. I can read much faster than I used to read.

TABLE 15 (cont.)

LEVELS	WORD DISCRIMINATION	SELF-CONCEPT
Children Reading 1st Reader	Confuses only very similar patterns, such as "chicken-children." Combines words into phrases and clauses. Now reads with expression. Often varies tempo of reading to meet demands of the story. Shows decreasing evidence of physical concomitants of reading (e.g., evidence of bodily tension).	I already know how to read a great many words. I am a person who can read almost everything.
Children Reading 2nd Reader	Discriminates rapidly among similar word patterns. Reads silently, not even moving lips. Reads fairly fluently, his eye often sweeping across whole line with no apparent regressions. Bodily movements cease. Rarely makes errors.	Now I can read accurately and rapidly. I am a person who can read easily.

[Source: Chart 4, pp. 37-38, Amsden (1968).]

Table 16 shows comprehension activities for each level, with anticipated changes in self-concept.

TABLE 16

A Summary of Activities Related to Comprehension, and Anticipated Concomitant Changes in Self-Concept, in the Malabar Reading Program

LEVELS	COMPREHENSION	SELF-CONCEPT
Kindergarten and Preschool Children	Listens with interest to stories read by teacher or other adult. Talking about the book and the story it contains with the adult is an integral part of this procedure.	I am a person who likes to listen to stories. I am a person who knows lots of adults who like to read to me. I like some stories better than others. I am a person who is beginning to develop taste in reading.
Children Reading Pre-Primer	Adults continue to read to children during the period when they are learning to read so that children can continue to enjoy books written at their maturity level, but which are still too difficult for them to read.	I want to learn to read because for a long time I have been the kind of person who likes stories. But right now, learning to read words is so difficult that I can read only one word at a time, so it is hard for me to follow the story-line.
Children Reading Primer	Not only reads school pre-primers with understanding, but also can read and understand simple meanings found in comics, some commercials on TV, signs, labels on cans, etc.	I find that words I learned in school appear in many places. I am becoming a person who can read interesting messages, wherever they are found.
Children Reading 1st Reader	Reads printed material sufficiently easily to understand and enjoy the story-line, while perfecting reading skills at the same time. Adult begins to reduce number of stories read to child and begins to question child about story he is reading, but still not so extensively as to emphasize content at expense of skill acquisition.	I find that I can read many real books myself and understand them. I like to be the kind of person who reads real books.

TABLE 16 (cont.)

LEVELS	COMPREHENSION	SELF-CONCEPT
Children Reading 2nd Reader	Understands a wide variety of printed material written for children. May be said to be reading with understanding. Now reads his own social studies, math, science, poetry, and music books. Uses the reading period to read for pleasure and information in the content areas.	Now I can read a wide variety of books. I know that I am a person who can read for information and for fun. I like to be that kind of person.

[Source: Chart 5, pp. 41-42, Amsden (1968).]

Finally, Table 17 presents ways in which the child is taught to become self-regulating and self-instructing, and again lists anticipated changes in self-concept brought about through these activities. The notion that the child will respond to "internal" stimuli is fundamental to the Malabar approach; a child should not depend entirely on external stimuli in the learning situation.

TABLE 17

A Summary of Activities Leading to
Self-Regulatory, Self-Instructing Behavior,
and Anticipated Concomitant Changes in Self-Concept,
in the Malabar Reading Program

LEVELS	SELF-INSTRUCTION	SELF-CONCEPT
Preschool and Kindergarten Children	Self-teaching accomplished daily through: Experimentation Confirmation of known facts Self-imposed practice	I am a person who is interested in new ideas, new materials. I am a person who likes to assure myself that I know what I think I know. I am a person who likes to repeat or practice recently acquired skills.

TABLE 17 (cont.)

LEVELS	SELF-INSTRUCTION	SELF-CONCEPT
Children reading Pre-Primer #1	Learns to conduct himself in the classroom independently of the teacher.	I am a person who can take good care of myself in the classroom even when the teacher does not tell us what to do.
Children reading Pre-Primer #2	Investigates structure of materials provided for self-teaching; tasks to be learned may be subordinate to structure seeking, however.	I am a person who has time to look at all the things in the room and think about them. Because I have long been a person who is interested in ideas, I like this time that I spend away from the teacher.
Children reading Pre-Primer #3	Begins to consciously apply himself to learning self-chosen tasks.	Now that I can teach myself, I find that there are some tasks that are particularly useful to learn. I am the kind of person who can teach himself useful tasks.
Children reading Primer	Begins to see the value to himself of academic learning during self-instructional time.	I find that I am a person who can really teach myself useful knowledge. I see that any person who can teach himself is a very powerful person.
Children reading 1st Reader	Shows ability to direct own learning by the completion of charted, short-term tasks.	Since I am the kind of person who can teach himself useful tasks, I am the kind of person who can teach himself all of the tasks I see that I need to learn.
Children reading 2nd Reader	Assumes responsibility for planned learning of long-term tasks of an almost contractual nature.	Since I have become the kind of person who can teach himself many tasks, I can plan what I will teach myself for the next few weeks or months.

[Source: Chart 6, p. 48, Amsden (1968.]

In the Malabar program, the typical classroom contained three broad modes of instruction called stations. Roughly one-third of the students in the class were in each station at any given time. In Station I, the teacher divided her time to work individually with each of the children who were seated together around one table. In Station II, the children worked individually on assigned work. They were encouraged to talk with and help one another. In Station III, children were free to choose the materials they wished to work on. The choices included books from the library, intellectual games and many individualized, self-instructional materials.

Active parent participation was a very important component of the program. Parents were urged to visit the school at any time they wished. Teachers made home visits and sent questionnaires via their students which requested information about the parents' ideas about what subject matter their child needed most help with. Mothers were recruited as volunteer teacher aides for the reading program. The parents initiated and ran "home libraries" during the summer months. The libraries, consisting of about 100 volumes each, were located in the homes of fifteen families.

Another component of the program was an after-school dance program which was conducted by a Mexican artist who presented lessons on Mexican culture, dance, poetry, and song.

Project staff developed some special materials to aid the reading instruction. These included four bilingual books (two of which consisted of the adaptation of stories written by the children themselves) listed under Quoted Sources, below. Also, special phonic workbooks and reference books were developed.

Methodology: Specific

A. Parent participation was described by a second-grade teacher as follows (Amsden, 1968):

"We have tried to encourage parent participation in our reading project at Malabar. We think it is important to bring the parents into the school and the classroom. We want the parents to know us and we want to know them, so that we can work together for what is best for the children.

Also, we needed to have the parents come in because, frankly, we needed their help. One teacher could not give thirty children the individual help they needed.

The third week of school, I sent letters home with the children. I invited the parents to come in on a certain afternoon at 3:00 o'clock. Six mothers showed up on the appointed day. ...

...Of the six mothers, four said that they would help. The ones who could not had small children at home.

We now had one mother coming in every morning for one hour to help with the morning reading class. The afternoon reading class had five or six mothers coming in at least once during the week. On some days, we had one mother; on other days, two; and, occasionally, three.

I found it helpful to keep the schedule of days and parents' names on the chalkboard. This gave the work importance and also helped to remind the mothers of their days. It also reminded the children to remind their mothers. They were very good at this.

When the mothers first started helping in the room, I could see that they felt a little ill at ease and out of place. They would come in hesitantly and, when a child finished reading for them, they were timid about calling another child to them. Soon, however, they were deeply engrossed in their work. They seemed to have developed a dignity and a sureness that what they did was needed and important.

...

The chilren whose mothers helped were very proud of their mothers. In the morning, for example, Errol would announce triumphantly in a loud voice so all would hear, "My mother will be in today, Mrs. Hartz."

...

...Almost invariably, when a child's parent came in to help, that child showed marked improvement in reading.

...

The mothers made every effort to come despite hardships. I knew how busy they were with home and family. Some even had to get baby sitters for younger children so that they could come. Almost invariably, if they could not come in, they would let me know by 'phone or note.

In some cases, mothers used their new found skills to help their younger children. Mrs. Marquez told me she had helped her young son,a first grader, improve his reading. She had used the Fernald method of tracing words to teach him. The boy had been having a great deal of trouble learning to read. One of our mothers read Spanish as well as English. She was very careful to translate for the non-Spanish-speaking children. The children enjoyed listening to her read and I know she enjoyed reading to them.

On "Back to School Night," the participating parents helped explain to the others in Spanish, if it were necessary, about the program. The other parents were very interested to meet the mothers who worked with their children and who knew them.

...

The parents who helped know us and the school much better. They feel at home in school now. As Mrs. Sanchez remarked to me one day, "I'm not afraid of school now!" We know the parents better. We not only know each other but like and trust one another.

I know that the parents who met with our participating parents and talked with them have a better feeling toward the school. Several mentioned with regret that they have not been able to help.

..."

B. Table 18 shows examples of materials used in the program.

TABLE 18

Examples of Self-Teaching Materials Used at Different Ability Levels in the Malabar Reading Program

Levels	Materials	Source
Preschool and Kindergarten	Shape Sorting Box	Creative Playthings
	Writing frame	Teacher-created
	The "Ing" Book	Project-developed
Pre-Primer #1	Phonics workbooks	Project-developed
	Difference Puzzles	Creative Playthings
	Magic cards (consonants & vowels)	Gel-sten
Pre-Primer #2	Wood lower- and upper-case letters	Creative Playthings
	Alphabet envelopes	Teacher-created
	Phonics Puzzles	Project-created
Pre-Primer #3	Magic cards (consonants (vowels (blanks	Gel-sten
	Vowel dominoes	Palfrey's
	Phonics wheels	Project-created
Primer	Advanced phonics reference books	Project-developed
	Word games	Gel-sten
	Reading workbooks	Individual publishers
First Reader	"Learning Wall" phonics discrimination tasks	Teacher-developed
	Supplementary pre-primers and primers	Individual publishers
	The "S" Book	Project-developed
Second Reader	Lotto - of reader vocabulary	Teacher-developed
	Dolch phonics games	Gel-sten
	Bilingual books	Project-developed

C. The three broad modes of instruction employed in the program are illustrated by examples below (adapted from Amsden, 1968):

In Station I, each child worked individually with the teacher as part of a group seated around a large table. Each child in the room had to receive his full share of time at Station I, as part of the learning group, with direct teacher supervision and guidance of his work. He was a member of a group; each member was working on his own book or story, pursuing knowledge intensively.

In Station II, the children worked individually on assigned tasks. Typical Station II activities were: checking back through their phonics books to review old material; practicing handwriting; working on spelling lists (only if they had completed phonics program); filing words; checking on mastery of old words; illustrating stories; copying stories; making a cover book for stories; or continuing writing stories started at Station I (if the teacher judged the child to be ready for independent work of this type).

The children's work at Station II was spot-checked only. The children had to understand why their assigned work was important and why the teacher could do no more than spot-check their work.

The child was not to think he was doing the work for the teacher but rather to reinforce his own learning, i.e., working for himself. Exchanging ideas and tutoring, were encouraged in this station, but children had to understand the difference between helping each other with "rough spots" and having someone else do their work.

In Station III, a change of pace was provided. The children might enjoy library books for free reading or browsing; use intellectual games (e.g., "Anagrams," "Spill and Spell"); or experiment with a variety of individualized self-instructional materials.

Evaluation

A. Measures of Achievement

The Stanford Reading Test (in its alternate forms) was the principal measure of achievement. It should be noted that this test was used to meet State requirements; its suitability remains in doubt, since its "floor" is a grade equivalent of 1.6, above the reach of many first grade pupils, and its norming sample was above average (mean IQ about 106).

The comparison group for the evaluation was provided by the pupils tested in 1966. These pupils were in the Malabar School right at the start of the program, and little or no treatment was provided for them up to the time of testing. Their teachers were gradually trained to operate the program. As each new wave of children moved up through the grades, it was taught by teachers who were introduced to the program, or in a few classes by teachers who had been in the program before. By 1969, the program was diffused throughout the school, to all grade levels, although officially it operated only up to fourth grade. The exact identification of waves is difficult due to the practice in Los Angeles schools (up to 1969) of admitting and promoting pupils twice a year. Moreover, since the classes did not all receive the same amount of treatment, numerous analyses carried out by the program staff have compared various groupings. Table 19 below summarizes the most important findings based on the Stanford Reading Test Primary I.

Table 19 shows that reading grade equivalents in the Malabar School significantly improved following introduction of the program. The favorable trend shown in the table was also supported by results of testing with the Primary II form of the Stanford Reading Test and the California Achievement Test (Form W), in third grade.

The percentage of pupils in the program obtaining scores which placed them in the third stanine or above increased during the program, as measured by the Stanford Reading Test (Primary I in first grade, Primary II in second and third grade), and by the California Reading Test (Upper Primary). Table 20 summarizes these increases. The numbers tested each year changed slightly, but there is no evidence that attrition from or addition to the original samples was of pupils different from those originally entering the program.

In addition to the Stanford Reading Test and the California Reading Test, the evaluators of the Malabar program used a locally developed Sight Vocabulary Test, the California Arithmetic Test, the Public School Primary Intelligence Test, and the Pintner-Cunningham Intelligence Test. Statistically significant differences were observed for the Sight Vocabulary Test.

Progress in oral language development was measured by analyzing children's recorded spontaneous language and the language they used during interviews. These analyses showed that children in the program in the primary grades attained higher scores on a variety of measures than baseline children, but the results for preschool and kindergarten children were inconclusive.

B. Other Evaluation Indices

The opinion of parents and community about schooling in general and the program in particular was sought in many ways. Questionnaires were distributed, formal and informal interviews were held, and home visits were made. Support for the program from parents and community was maintained at a very high level.

TABLE 19

Mean Stanford Reading Scores for Various Groups in the Malabar Reading Program

Group	N	Mean Grade Scores on Stanford Primary I		
		Word Reading	Para. Meaning	Total Reading
First grade baseline group (1966)	139	1.3	1.4	1.4
First grade group in program in first grade only	106	1.4*	1.6*	1.5*
First grade group in program in preschool, kindergarten, first grade	19	1.6*	1.6*	1.6*
All first graders in program	145	1.5*	1.6*	1.5*
Second grade baseline group (1966)	121	1.6	1.7	1.7
Second grade group in program in first and second grade	59	2.0*	1.9*	1.9*
Third grade baseline group (1966)	112	2.0	1.9	1.9
Third grade group in program in third grade (and taught by a training teacher the preceding semester)	23	2.7*	2.6*	2.7*

*Statistically significant difference in raw scores ($p < .05$) favoring program group when compared with baseline group.

TABLE 20

Percentage of Pupils Scoring in Third Stanine and Above in Reading, Malabar Reading Program

Test	Grade	Percentage of pupils in third stanine and above			
		May 1966	May 1967	May 1968	May 1969
Stanford Reading, Primary I, Total	1	7.5 N=139	21.2 N=131	41.7 N=120	55.3 N=114
Stanford Reading, Primary II	2	14.5 N=121	12.4 N=125	25.4 N=115	42.3 N=130
Stanford Reading, Primary II, Total	3	27.5 N=112	28.2 N=117	34.3 N=108	56.1 N=123
California Reading, Upper Primary	3	36.3 N=114	48.7 N=117	69.1 N=110	-

Budget

The main source of support for this program was the U.S. Office of Education, which provided $350,000 over 3 years under Title IV of the Elementary and Secondary Education Act, 1965. These funds were used for the salaries of two preschool teachers specially hired for the program, and of the research staff. The expenditure represented $250-300 per pupil.

The regular teachers at the school, paid by the district, became part of the program in due course. Equipment and materials were paid for out of the regular school budget.

It would be fair to say that some of the research costs were development costs which would not recur on replication of the program. Other research costs were for evaluation.

Modifications and Suggestions

The program directors suggest that three components should be added: more in-service training, after-school bilingual activities, and extension of the program to pupils in grades four through six and in non-public schools. The in-service training would emphasize both the philosophy and the techniques employed; the after-school activities would extend the school day and offer more opportunities for instruction in Mexican culture and language; and Mexican-American pupils in nonpublic schools would learn to read better.

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THE PLUS PROGRAM IN BUFFALO, NEW YORK

Introduction

The Plus Program was designed to provide a maximum amount of remedial work in reading and mathematics for elementary school children in target areas. A staff of skilled teachers was employed to provide students with additional small group and individual instruction in specific areas of difficulty during the regular school day.

About 75% of the project pupils were Negro, 20% were white, and the remaining 5% Puerto Rican. Pupils ranged in age from 7 to 18 years and attended grades 1 through 8. They came from heterogeneous inner-city neighborhoods in which the occupations of heads of families varied from unskilled to professional, with some receiving welfare.

Participating children were selected by the principal with the assistance of the classroom teacher. When selecting children for the Reading Program, the reading teachers were also consulted. Achievement and readiness tests and the classroom teacher's estimates of the reading and arithmetic levels of the pupils were used as a basis for selection In most cases, referrals were 1 to 2 years below grade level.

The program began in January of 1966 and has continued through the 1966-67, 1967-68, and 1968-69 school years to the present. In 1966-67 there were 6,700 pupils in the program from among 27,000 in 29 public and 24 parochial schools in Buffalo's target area. In 1967-68 the program enrollment increased to 7,436 pupils from 47 public and 25 parochial schools. Sixteen of the 72 schools included in the 1967-68 program were in non-target area schools which received inner-city Negro children who were participating in an integration program. Two-thirds of the project students were in the corrective reading program, with the remaining one-third receiving assistance in mathematics.

An evaluation of the 1967-68 program showed that pupils enrolled in the program made a mean gain of 8 months in reading achievement during the 7 months between testings, and of 9 months in mathematics during the 8 months between testings. These results are similar to those found in 1966-67. The California Reading and Arithmetic Tests were used in the evaluation.

Personnel

A. Project Administrator

The project administrator worked half-time in the program. He held an MA in Administration Supervision, and had 7 years experience as an assistant principal. He assumed overall responsibility for the direction of the program, planning the details of each phase.

B. Assistant Project Administrators

There were two full-time assistant administrators, both of them contract teachers with experience in the inner-city and supervisory certification.

One was assigned to the corrective reading program and one to remedial mathematics. They were in charge of the administration and supervision of the programs. Their duties included conducting in-service meetings, ordering materials, giving demonstration lessons, administering the program within the school, and supervising and evaluating the personnel.

C. Corrective Reading Teachers

There were 102 full-time and 10 part-time teachers. About 60% of them were certified by the State of New York and the Buffalo Board of Education. The remaining 40% were certified by the Buffalo Board of Education.* Eighty percent were women, and the rest men. In 1968 at least 75% had two years of experience in the program.

D. Corrective Mathematics Teachers

Fifty temporary teachers were employed by the program to teach remedial mathematics. As for the reading teachers, 80% of the mathematic teachers were women, and in 1968 at least 75% had 2 years of experience in the programs.

The duties of the corrective teachers consisted of teaching corrective reading or remedial mathematics classes. They were also assigned other school duties by the principal, such as substituting in classrooms in emergencies, assisting on bus trips, or cafeteria, hall, and outside duties.

E. Librarians

The seven full-time librarians were employed to maintain library facilities in target area schools.

F. Clerks

The two full-time clerks were responsible for keeping records, typing correspondence, and any other clerical activities related to the program.

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*All applicants must have a college degree and meet state certification requirements which consists of a specified number of education and subject matter courses. Successful completion of the Buffalo Teachers Examination is the final step in certification. Those teachers who do not meet state requirements in subject matter and education courses are in default of certification and must complete six hours per year until certification is met. Teachers are employed in default of certifications only in the event that teachers meeting state requirements are unavailable.

Methodology: General

A. Corrective Reading Program

The program was initiated in response to certain needs which had been identified in the elementary classrooms of Buffalo's target area. They were:

1. The need to help the educationally disadvantaged child achieve as do his more fortunate peers from other areas;

2. The need to offer the classroom teacher a resource person in the teaching of reading, to aid with methods, materials, techniques and developments that would assist her in her reading program with all students; and

3. The need to narrow the range of achievement in the classroom through corrective classes for those who are not achieving at grade level, and in so doing aid in classroom instruction and management for all students.

To meet these needs a supplementary reading program which involved corrective procedures was designed with the following stated objectives:

1. To aid the classroom teacher in achieving the best reading program for her class;

2. To provide help for the classroom teacher in diagnosing and giving remedial assistance to problem readers; and

3. To teach phonetic and word-attack skills, comprehension, vocabulary improvement, and work and study habits with small group instruction and to encourage reading for recreation.

A staff of corrective reading teachers was hired to provide the additional services necessary to meet the program objectives. Each full-time teacher taught seven classes daily of five or six students each. Classes for primary students were 30 minutes long, while intermediate and junior high classes lasted 45 minutes.

There were 4,490 children from grades 2 through 8 in the program in 1966-67; in 1967-68 the number had increased to 5,017 from grades K through 8. Project pupils ranged in age from 7 to 13 years in 1966-67 and from 5 to 19 years in 1967-68. The program was designed for children under-achieving one or more years in reading.

Children were grouped according to their reading ability. Reading deficiencies were determined by use of phonic survey and Botel's tests. One-to-One teacher-pupil relationships were established to meet the individual needs of particular children.

The reading classes were designed to be corrective, rather than developmental. They supplemented the regular classroom instruction in reading; they did not replace it. The project children participated in all regular reading activities in the classroom and came to the corrective classes for special help in diagnosed problem areas.

The project teachers worked closely with the classroom teachers in designing a coordinated program of activities. In all corrective classes, emphasis was placed on the integration of reading, writing, listening, and speaking. A constant attempt was made to tie activities to familiar experiences whenever possible.

Since each teacher individualized her classes to meet the special needs and interests of the students, the program content could differ greatly from class to class. Teachers chose from among 15 series of textbooks, workbooks, etc., and 115 different paperback books, those most appropriate for a particular group or individual.

Reading materials were obtained bearing in mind the backgrounds of the children in the target areas. Textbooks such as The Bank Street Readers and materials for Spanish-speaking children were provided. Audio-visual materials for Spanish-speaking children were used in some schools. Books of high interest and low-level vocabulary content as well as recreational readers from pre-primer to grade 5 were provided. Teaching aids such as tape recorders, overhead projectors, record players, filmstrip viewers, duplicating masters, charts, and teaching games were also used.

Although program content varied from class to class, the amount of time that should be spent on different types of activities was recommended by the Project Administrator. At the lower levels, activities included reading from books and practice with workbooks. At the intermediate levels, skill type materials, such as Readers Digest Skill Builders and other reading materials, including programmed materials, were used.

Before their assignment to a school, the teachers were given five days of training by two reading specialists. This included lectures on the background and language development of disadvantaged children, testing, grouping, and record keeping. The teachers were also instructed in methods, use of materials, and demonstrations with children. Participation by the teachers included lesson planning and practice in manuscript writing.

Two in-service programs for reading teachers, the Intern Programs, were conducted in the summers of 1966 and 1967 at the School #46 Reading Center. The objective of these programs was to train the teachers to be corrective reading teachers as well as resource persons who could assist in the total school reading program of a core-area school. The first summer 14 experienced teachers, chosen because of their outstanding ability as teachers, attended the course and received intensive training provided by three reading specialists. In addition to teaching remedial reading classes in the Plus Program, they attended lectures at the Reading Center three afternoons a week for a year to complete their training. The second summer, 12 teachers attended a similar in-service program which lasted 6 weeks.

A small percentage of the reading teachers (15 teachers) also received training during another in-service program in the summer of 1967. This program comprised daily sessions from 9:00 AM till noon. One hour was for small group instruction and two hours were for lectures on methods and planning and evaluation presented by the group leader. Daily supervision and demonstrations were also included.

In addition, specialists and resource personnel were available to the teachers during the year to discuss materials and methods of instruction and the disadvantaged child.

B. Remedial Mathematics Program.

The Remedial Mathematics Program was organized to meet needs similar to those which had been identified in the Reading Program, i.e., assist the educationally disadvantaged child, provide the classroom teacher with a resource person for the teaching of mathematics, and narrow the range of mathematics achievement in the classroom. Accordingly, the objectives of the Mathematics Program were also similar to those in reading. They were:

1. To aid the classroom teacher in achieving the best mathematics program for her class;

2. To provide help for the classroom teacher in diagnosing and giving remedial assistance to students having poor achievement in mathematics; and

3. To teach number concepts and operations and problem solving through small group instruction and to improve work and study habits.

To meet these objectives, remedial mathematics instructors provided assistance in a tutorial situation to groups of six children. Each teacher scheduled six to seven groups a day, for a total of 36 to 42 pupils per week. Homogeneous grouping was used whenever possible to increase the efficiency of instruction. The daily sessions varied from 30 to 45 minutes depending on the grade level of the children.

The program was designed for children in grades 1 through 8, underachieving one or more years in arithmetic, but with potential. In 1966-67 there were 2,210 children in the program, their ages ranging from 5 to 15 years. In 1967-68 the number had increased to 2,419, with ages from 5 to 18 years.

As with the corrective reading classes, the remedial mathematics classes were designed to be corrective, rather than developmental. The remedial teachers worked closely with the classroom teachers in designing a coordinated program of activities. Emphasis was placed on the use of manipulative materials to give concrete examples of how numbers work. Number concepts were discussed, rather then learned by rote.

Due to the individualization of instruction, program content differed from class to class. The program teachers could select appropriate materials from among 78 different visual-manipulative items (such as flash cards or measuring sets) and two mathematics texts with applied materials for reference and use. In addition, filmstrips and overhead transparencies were supplied to each teacher along with the appropriate equipment. Teachers were also encouraged to use their own ideas to develop materials appropriate to their situation.

All teachers participated in a 4-day orientation program prior to assignment. In addition, ten mathematics teachers attended an in-service training course in the summer of 1967. Monthly in-service programs were held for all teachers during the school year to facilitate communication and provide further instruction in methods and materials. In addition to consultants and resource personnel, ten 16mm films from the United World Film Company Series entitled "Mathematics for Elementary School Teachers" were used in these monthly meetings.

In both the corrective reading and corrective mathematics programs, small groups and individual attention enabled teachers to diagnose better the needs of each child, and to concentrate on the development of the specific reading or mathematics skills required in each case. Children had a better chance for successful experiences because instruction was geared to their ability and, with more successful experiences, a positive change of attitude toward self and school was brought about. Also, with small groups, it was possible to provide wide-scale instruction, children got to know their teachers better, and those previously too shy or afraid to participate in class had an opportunity to do so.

Attempts were made to involve parents in the progress of their children in the program. Every parent was invited to individual parent-teacher conferences at the beginning and end of the program to discuss the progress of her child. They were also encouraged to view the program while it was in operation during the school year and were invited to come in at any time.

In addition to the corrective classes themselves, project pupils received the benefits of three other aspects of the Plus Program which were in operation in the target area schools at the same time. They were an art-music-physical education program to provide enrichment lessons for pupils in grades 1 through 3; a pupil personnel services program to provide extra guidance services for grades K through 8; and a field trip program to provide information and transporation for four field trips per year for grades 1 through 8. All students in the target area schools participated in these programs, both those who were taking part in the remedial classes and those who were not.

Methodology: Specific

A. Reading: The following example would be illustrative of the attempt to integrate the exercise of skills of reading, writing, speaking, listening, and thinking in a single, small-group experience.

An administrator in a school had addressed the youngsters, urging them to participate in the school candy sale and to set new sales records. Later the reading teacher noticed that youngsters in her small group were concerned about their role in the project. She suggested they share their concern within the group. Several youngsters indicated they would probably be unable to set a record of sales. The teacher guided the discussion to include reactions to, or examples of success and failure. She then guided the students in writing a brief paragraph about success and failure. In so doing, she led them in building vocabulary, spelling skills, punctuation, and phrasing. Later some of the writing was offered to others in the group to be read and reacted to; this in turn stimulated further discussion. Thus, from a human concern of the students themselves there came exercise in reading, writing, speaking, listening, and thinking. Each child participated as his abilities permitted, and was guided and encouraged by the teacher in the small group.

B. Reading: Fifteen different series of reading textbooks were ordered for use in the program. They were:

Macmillan Company	Textbooks, workbooks, and teachers guides for In the City (PP 1) through Around the Corner (3.2)
Houghton-Mifflin Co.	Getting Ready to Read Series and Primary Kits for Spanish Speaking Children
Bobbs, Merill Co.	Ready to Read through Shooting Stars
McGraw-Hill	New Practice Readers, Series A-D
Lyons and Carnahan	Phonics We Use, Books A-F
Barnell Loft, Ltd.	Working With Sounds A-D, and Locating the Answer A-F
J. B. Lippincott	Reading for Meaning, Books 4-6
Reader's Digest Services, Inc.	Reading Skill Practice Pads 1-3 and Advanced Practice Pad
Ginn and Co.	Word Enrichment Program, Novels 1-4
Continental Press Inc.	Beginning Sounds I and II, A Trip Through Wordland C and D, and Adventures in Wordland E and F
J. L. Hammett Co.	16 sets of phonetic games and puzzles
Garrard Publishing Company	7 sets of word card games
Charles E. Merrill	Bibs and Nip the Bear
Science Research Associates	S.R.A. Reading Laboratory 1-C
Harcourt, Brace and World, Inc.	Speech to Print Phonics and Phonics Practice Program

C. Reading: In addition to the textbook series, paperback books were available for use in the corrective reading program. These paperbacks were selected by committees of teachers and parents. The project children were encouraged to take home at least one book per week for independent reading. Below are some typical titles from the list of over 100 purchased.

Title	Author	Level
All Kinds of Bab Babies	Selsam	K-3
Bears	Krauss	K-3
Benjamin Budget & Barnaby Bell	Heide	K-3
The Happy Egg	Krauss	K-3
Just Me	Ets	K-3
No Roses for Harry	Zion	K-3
The Snowy Day	Keats	K-3
What Mary Joe Shared	Udry	K-3
What Whiskers Did	Carroll	K-3
The Case of the Hungry Stranger	Bonsall	K-3
Clifford Gets a Job	Bradwell	K-3
Clifford Takes a Trip	Bradwell	K-3
Congo Boy	Clarke	K-3
Magic Secrets	Wyler & Ames	K-3
Not This Bear	Myers	K-3
Coyote for Keeps	Johnson	3-7
Mr. Widdle and the Sea Breeze	Stover	2-6
The Story of Doctor Doolittle	Lofting	4
The Voyages of Doctor Doolittle	Lofting	4
The Saturdays	Enright	3-7
All-of-a-Kind Family	Taylor	3-7
More-All-of-a-Kind Family	Taylor	3-7
The Beech Tree and Johnny Jack and His Beginnings	Buck	2-5
Harriet the Spy	Fitzhugh	5
I Go By Sea - I Go By Land	Travers	3-7
Call Me Charley	Jackson	3-7
Charley Starts from Scratch	Jackson	5-8
The Water Buffalo Children and the Dragon Fish	Buck	2-6

John F. Kennedy	Groves	2-6
Abraham Lincoln	Clover	2-6
Florence Nightingale	Clover	2-6
Helen Keller	Graff	2-6
Melindy's Medal	Faulkner	3-5
A Present From Rosita	Edell	3-5
Hold Fast to Your Dreams	Blanton	7-9

D. Mathematics: Two basic textbook series were used for the remedial mathematics program. They were: Sets and Numbers: Modern Mathematics, K-6 by Suppes and Arithmetic, 1-8 by Laidlaw. The following visual-manipulative materials were also available for use:

Addition, subtraction, multiplication and division flash cards
Toy money kit
Plastic counting disks
Set of number lines, 0-100
Set of Judy number indents
Set of Judy color shapes
Rubber stamp clock face
Set of Instructo numerals, words, and symbols
Fractional number line
Set of Instructo modern math symbols
Kit on reading whole numbers
Kit on the introduction of sets and numbers
Kit on operations on sets and numbers
Teacher's Judy mini-clock
Liquid measure set
Dry measure set
Modern computing abacus
10-bead numbers fact finder
20-bead numbers fact finder
Number frame
Place value chart
Set of expanded notation cards
Decimal place value card
36" x 48" flannel board
One-hundred chart
Number concept chart
Fractional chart
Equivalent chart
Matrix chart for multiplication
Square yard
Set of number readiness posters
Set of arithmetic process pockets
Judy calendar
Set of primary number lines
Set of enlarged fractional parts with a cohere-o-graph

Perimeter area board
Giant rule
Enlarged thermometer
Set of primary number cut-outs
Counting frame
Set of alphabet capitals
Set of lower case letters
Kit on "visualizing elementary mathematics"
"Judgements and Readiness" set
Teacher counting frame
Pattern board set
Set of additive sticks
Ten-ten board
Set of colored rods
Time learning set
Set of ones-tens-hundreds
Rubber stamp of 1-10-100
Set of oriental abaci
Set of numerals and relations
Magnetic board with a bag of disks
"Base and place" set
Set of simple fractions
Set of advanced fractions
Linear measurement set
Area and perimeter measure set
"Introductory geometry" set
Teacher's set of geometric solids

Evaluation

A. Measures of Achievement

The initial half-year of the project (January to June, 1966) was a period of organization during which administration details were worked out and the responses of students, teachers, and administrators were assessed. No data were collected at that time.

In 1966-67 the California Reading Test and the California Arithmetic Test (Forms W and X) were used to determine gains. Lower Primary, Upper Primary and Elementary editions were employed as appropriate.

The tests were administered by the project teachers to all pupils who were in attendance on the testing dates. The pretest was administered during the first two weeks of October and the posttest during the last two weeks of May.

A total of 3,298 children were present at both pre- and posttesting in reading. The evaluation was based on the results from 15 schools which were representative of the inner-city district. The entire tested populations of these schools were used as the sample, which numbered 824. The sample pupils comprised the classes of 20 teachers out of a total of 105 in the project. The results showed mean gains of 8.2 months in

Vocabulary, 9.6 months in Comprehension, and 8.9 months in Total Score, during the 7.5 months between testings. In all cases, the mean gains were greater than the time between testings.

The results in mathematics for that year were not quite as exceptional. A total of 1,663 pupils were present at both testings. An analysis of their scores revealed a mean gain of 7.3 months in arithmetic placement during the 7.5 months between testings.

The California Reading and Arithmetic Tests (Forms W and X) were used again in 1967-68 to measure gains. The administration procedure was similar to that used in 1966-67.

Pupils in the Reading Program were pretested during the first two weeks of October and posttested during the last two weeks of May. A total of 5,017 pupils took both tests. Table 21 shows the mean gains in terms of grade equivalents for a random sample of 921 pupils. Sample students were selected by taking every fifth child in an alphabetical list by schools. Fifty-six of the 921 pupils in the sample (6%) were also part of an intergration study.

TABLE 21

Average Reading Gains in Grade Equivalents for Pupils in the Plus Program 1967-68

Grade	Sample N	Total N	Pretest Mean	Posttest Mean	Mean Months of Gain in 7.5 Months
K	0	24	-	-	-
1	12	72	1.3	1.7	4
2	233	1323	1.3	2.0	7
3	218	1177	2.0	3.0	10
4	198	1034	3.0	3.9	9
5	125	642	3.9	4.7	8
6	87	468	4.8	5.8	10
7	31	171	5.4	6.1	7
8	17	106	6.4	7.1	7
Total	921	5017	3.5	4.3	8

As can be seen from Table 21, the mean gains for the total sample and for grades 3, 4, 5, and 6, representing two-thirds of the reading pupils, were greater than the time between testings. While the 6% subsample of pupils who were also participating in an integration study which has shown gains in cognitive achievement could have contributed to the magnitude of the effect, it is very unlikely that that amount of contamination alone could have been responsible for the overall positive direction of the results.

The California Arithmetic Test was administered to pupils in the Mathematics Program during the first week of October, 1967, and the first week of June, 1968. A total of 1,656 pupils took both tests. Table 22 shows the mean gains in grade equivalents of a sample of 328 pupils selected by taking every fifth child in an alphabetical list. None of the pupils in the Mathematics Program was participating in another study.

TABLE 22

Average Arithmetic Gains in Grade Equivalents for Pupils in the Plus Program 1967-68

Grade	Sample N	Total N	Pretest Mean	Posttest Mean	Mean Months of Gain in 8 Months
1	2	10	1.0	1.4	4
2	60	303	1.5	2.3	8
3	68	346	2.6	3.5	9
4	73	370	3.5	4.5	10
5	74	377	4.6	5.5	9
6	42	212	5.3	6.3	10
7	5	25	6.7	7.4	7
8	3	5	6.6	7.7	11
Other	1	8	2.3	3.0	7
Total	328	1656			9

An examination of the figures in the table shows that the mean gains for the total sample and for five of the nine groups, representing about 80% of the mathematics pupils, were greater than the time between testings.

B. Other Evaluation Indices

Comments were collected from classroom teachers and principals. In general, they felt that the program had been effective in improving the children's achievement and attitudes. Parents of project children also made favorable comments.

Budget

The program was financed in full by funds from ESEA Title I grants.

The total cost for operating the program for one year was approximately $1,400,000, the majority of which was spent on salaries. An additional $200,000 had been spent on the purchase of room supplies and audio-visual equipment when the program started.

The per pupil cost for 1967-68 was $200 for teachers' salaries, with an additional $19 for reading materials, and $9.50 for mathematics materials.

The main sources of expenditure were:

A. Personnel

1 Project Administrator	part-time
2 Assistant Project Administrators	full-time
50 Mathematics Teachers	43 full-time, 7 part-time
112 Reading Teachers	102 full-time, 10 part-time
7 Librarians	full-time
2 Clerks	full-time

B. Supplies

Teaching Materials (each teacher ordered those appropriate for her students from a list which included the following.)

115 Paperback books
15 Series of reading textbooks and workbooks, some with charts, games, etc.
78 Visual-manipulative materials for teaching mathematics
2 Series of mathematics textbooks, workbooks, teacher's editions and duplicating masters, K-6

Audio-Visual

Overhead projectors, tape recorders, and record players were purchased for use by the teachers.

Classroom Supplies

Each teacher was supplied with the equipment necessary to maintain her classroom, such as, filing cabinets, tables and chairs, chalkboards, etc.

Modifications and Suggestions

The project administrator suggested that the services of the corrective teachers would possibly reap even greater benefits if the teachers worked within the classrooms themselves, rather than tutoring small groups outside of the classroom. It has been felt in the past that an important aspect of the success of the program was the close coordination between the corrective teachers and their respective classroom teachers. Placing the remedial teachers within the classrooms should strengthen this relationship. A pilot program of this procedure is being conducted in the 1968-69 school year using 15 corrective teachers. Each teacher works in two classrooms in the morning and two in the afternoon. Evaluation of the results should follow the end of the school year.

Project personnel also felt that more emphasis should be placed on parent participation. They hoped to identify more areas for participation of parents in the program, define them precisely, and devise methods to encourage greater participation.

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AFTERNOON REMEDIAL AND ENRICHMENT PROGRAM IN BUFFALO, NEW YORK

Introduction

Children in this program were provided with learning and enrichment experiences in their schools during after-school hours. They were taught individually or in small groups by qualified teachers.

The children participating were from the city's target areas. About 75% were Negro, 20% were white, and the remaining 5% Puerto Rican. Pupils ranged in age from 9 to 13 years and attended grades 3 through 8. They came from heterogeneous inner-city neighborhoods in which the occupations of heads of families varied from unskilled to professional, with some receiving welfare.

Project children were selected by the principal with the assistance of the classroom teacher. Achievement test scores and the teachers' estimates of the child's reading or arithmetic level were used as a basis for selection. In most cases, referrals were one or more years below grade level.

The program began in January of 1966 and has continued through the 1966-67, 1967-68, and 1968-69 school years to the present. In 1966-67 there were 4,365 pupils from 27 schools who participated in the program, with an average daily attendance of about 2,400. About 25% of these pupils were from parochial schools, with the rest from public schools. In 1967-68 the total enrollment had dropped to 2,484 from 29 schools. Only 4% of these pupils were from parochial schools. This change was due to a reduction in the funds available for hiring teachers.

An evaluation of the 1966-67 program showed that pupils enrolled in the program made a mean gain of 5 months in reading achievement and 6 months in arithmetic during the 5 months between testings. The California Reading and Arithmetic Tests were used in the evaluation. No test data are available for the 1967-68 and 1968-69 programs.

Personnel

A. Project Administrator

The project administrator worked half-time in the program. He held an MA in Administration Supervision, and had 7 years experience as an assistant principal. He assumed overall responsibility for the direction of the program, planning the details of each phase.

B. Assistant Project Administrator

There was one full-time contract teacher with 8 1/2 years of experience in inner-city schools who acted as assistant administrator. He was in charge of the administration and supervision of the program. His duties included conducting in-service meetings, ordering materials, and supervising and evaluating personnel.

C. School Administrators

These were principals and assistant principals of the schools in which the program took place. They numbered 27 to 29, and were part-time on the program. They were responsible for administration of the program within the school. They selected the children to be included in the program, worked with the teachers in selecting materials, and handled communication with the parents.

D. Remedial Teachers

In 1966-67 there were 253 remedial teachers, 135 in mathematics and 118 in reading. In 1967-68 that number was reduce by about 20%. All of the remedial teachers were certified by the Buffalo Board of Education. They were regularly employed teachers working in the schools participating in the program. Their duties included planning the children's activities, providing instruction, administering tests and recording results, and submitting weekly reports of activities.

E. Enrichment Teachers

In 1966-67 there were 70 enrichment teachers. Their certification and regular employment was similar to that of the remedial teachers. They taught classes in art, music, industrial arts, and physical education. Their activities were similar to those of the remedial teachers with the omission of testing duties.

F. Librarians

They were responsible for dispensing books to the project students. Ten of them worked in the program, all part-time.

G. Psychologists

Four psychologists gave assistance on a referral basis to children with learning problems. They served the program only part-time.

H. Clerks

They typed weekly attendance reports, payrolls, final reports, and performed general record keeping duties. They worked part-time, and numbered 27-29.

In addition to the above, 27 crossing guards were employed to provide for the safety of the children at dismissal time, and 27 engineers and custodians were in charge of maintenance at the schools.

Methodology: General

The program had the following stated objectives:

To help the children of the target area use time not usually spent in school to improve their abilities in reading and mathematics.

To make available to these children enrichment programs to develop their skills in these areas.

To give the children of the target area a place to spend their time usefully.

To meet these objectives, the facilities of the participating schools were made available for use 3 days a week for 1 1/2 hours at the end of the regular school day. Children attended one remedial and one enrichment class each afternoon that the program was in session for 1 1/2 months--a total of 66 days.

The classes were taught by regularly employed teachers from the participating schools. Each class consisted of six children and was 45 minutes in length. Small group and individual instruction enabled teachers to better diagnose needs and to concentrate upon development of required skills in reading and arithmetic. It also allowed for a closer relationship between teacher and child.

The choice of teaching methods and materials used in the corrective classes was left up to the individual teacher for the most part. Since the classes were individualized to meet the needs of the children, class structure and content varied widely. Teachers were encouraged to use novel approaches which would increase interest and motivation. The administrators checked plan books and made daily observations to maintain the quality of instruction.

The program used the instructional materials and audio-visual equipment which was available in the classrooms for use during the regular school day. In addition, each teacher received an allotment from which to purchase any other materials that were needed. Remedial reading teachers could also order from a small materials list.

Audio-visual materials were widely used. Audio-filmstrips and films inspired great interest among the children, who were also able to participate more frequently in the playback use of tape recorders. Educational games were employed as a new approach to learning, and children were provided with workbooks which they used at school and could take home.

Enrichment classes were offered in art, music, industrial arts, and physical education. The school gymnasiums were kept open and supervised recreational activities were available to the children. Enrichment classes were designed to provide the children with new interests and skills.

Attempts were made to involve parents in the progress of their children. Parent councils met once every 3 weeks in 1967-68 to discuss possible changes in the program. Teachers were asked to contact every parent to arrange a conference. Culminating activities were carried out at the end of the program and parents were invited to an open house to see a display of their children's work.

Methodology: Specific

A. Corrective Reading

An example of the approaches employed in the program to increase motivation was the use of experience charts in building individual biographies. Children discussed the types of facts to include in biographies and compared their histories with those of the other children before writing their compositions.

B. Corrective Arithmetic

A visit to an arithmetic class might produce the following observations: "Some children were making clocks with moveable faces as part of their lesson on telling time; others were watching a filmstrip for an introduction to division; and a third group was learning about fractions with colored plastic blocks." This description is typical of the individualization and emphasis on concrete examples of number theory in the arithmetic program.

C. Enrichment

As an exercise in industrial arts, boys and girls constructed an entire room, complete with flooring, windows, electric wiring, etc. Other examples of the emphasis on providing the children with new interests and skills were: an introduction to the piano in music, the teaching of acrobatics in physical education, and a lesson on charcoal sketching in art using other students as models.

D. Materials

The following reading and arithmetic materials were available to supplement those already in the classroom:

1. Mathematics - The Growth in Arithmetic Series (Harcourt, Brace, and World), and the Liquid Duplicators for Mathematics, Grades 1-6 (Continental Press).

2. Reading - The American Book Co. Basic Readers, The Readers Digest Skillbuilders, The Educational Service Inc. Teachers' Handbooks, The Educational Reading Service Inc. Third Grade Classroom Library, and Adventures With Paperbacks Set, and the Lyons and Carnahan Phonics We Use Kit.

Evaluation

A. Measures of Achievement

The initial half-year of the project (January to June, 1966) was a period of organization during which administration details were worked out and the responses of students, teachers, and administrators were assessed. No data were collected at that time.

In 1966-67 the California Reading Test and the California Arithmetic Test (Forms W and X) were used to determine gains. Lower Primary, Upper Primary and Elementary editions were employed as appropriate.

The Tests were administered by the project teachers to all pupils who were in attendance on the testing dates. The pretest was administered on November 10 and the posttest on April 20. A total of 802 children were present at both pre- and posttesting in reading, and 944 in arithmetic.

Tables 23 and 24 show the mean gains made by the children in reading and arithmetic. The figures are based on the entire population of pupils who were present at both testings.

TABLE 23

Average Reading Gains in Grade Equivalents
for Pupils in the Afternoon Remedial Program 1966-67

Grade	N	Pretest Mean	Posttest Mean	Mean Months of Gain in 5 Months
2	10	1.9	3.3	14
3	28	2.8	3.4	6
4	319	3.6	4.1	5
5	239	4.2	4.8	6
6	187	5.0	5.5	5
7	13	5.9	6.4	5
8	6	5.0	5.7	7
Total	802			5

TABLE 24

Average Arithmetic Gains in Grade Equivalents for Pupils in the Afternoon Remedial Program 1966-67

Grade	N	Pretest Mean	Posttest Mean	Mean Months of Gain in 5 Months
2	6	2.0	2.6	6
3	16	3.2	3.7	5
4	338	4.1	4.6	5
5	253	4.8	5.5	7
6	258	5.6	6.4	8
7	37	6.9	7.5	6
8	36	7.3	8.0	7
Total	944			6

As can be seen from the tables, the project pupils made mean gains in arithmetic and reading at all grade levels which were equal to or greater than the time between testings.

No test data were collected in 1967-68. Evaluation that year was in terms of anecdotal statements from principals and teachers. Results from the 1968-69 school year had not been collected at the time that this report was compiled.

B. Other Evaluation Indices

The reactions of all groups involved in the program were generally positive. Administrators and teachers thought that the program was effective. Teachers particularly enjoyed working with small groups in a relaxed atmosphere. Students showed their support of the program through regular participation. The average yearly attendance was 50 days out of 66. Parents also took an active part in the program. In 1967-68 a total of 368 parents attended council meetings and 737 parents attended parent-teacher conferences. From 184 responses to a parent opinion poll in 1966-67, 179 stated that their children had benefited from the program.

Budget

The program was financed in full by funds from ESEA Title I grants.

The total cost for operating the program for one year was approximately $420,000, with 75% spent on salaries, 12 1/2% on instructional supplies, and 12 1/2% on custodial costs.* There were no appreciable start-up expenses.

The per pupil cost for 1966-67 was $83.

The main items of expenditure were:

A. Personnel

1 Project Administrator	part-time
1 Assistant Project Administrator	full-time
27 School Administrators	part-time
323 Teachers	part-time
10 Librarians	part-time
27 Clerks	part-time
4 Psychologists	part-time
27 Crossing Guards	part-time
27 Engineers	part-time
27 Custodians	part-time

B. Instructional Supplies

In addition to the equipment available in the classrooms, each teacher received an allotment from which to purchase any other materials that were needed. In 1967-68, remedial reading and mathematics teachers received $40 each, while music teachers received $100, art teachers received $300, and industrial arts teachers $400. Remedial reading teachers could also order from a materials list which contained 14 workbooks with teachers editions, two series of paperbacks, and one games kit. A set of textbooks and duplicating masters were supplied for the mathematics teachers, and teachers' handbooks were available for art, music, physical education, and reading.

C. Custodial Supplies

All supplies such as soap, wax, and cleaning cloths necessary for cleaning the schoolrooms were purchased by the program.

Modifications and Suggestions

The project staff suggested that paid school aides be chosen from the community to work in the schools. This plan would increase community participation in the program while providing the teachers with needed classroom assistance. The duties of the aides could be determined by the classroom teachers. Typical duties would be to help the children to select library books, to play phonics games, and to assist the teacher in reinforcing lessons. A pilot program using 185 aides is being conducted in the 1968-69 school year. Results, in terms of community and teacher support, have been very encouraging.

Quoted Sources

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*Since the project pupils and personnel used the schools after the regular school day, the entire cost of the daily cleaning of classrooms, gymnasiums, and other rooms had to be assumed by the program.

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THE AUGMENTED READING PROJECT OF POMONA, CALIFORNIA

Introduction

This program provided supplemental reading instruction through remedial reading classes. In addition, pupils in these classes benefited from cultural enrichment activities, classroom support, and a community involvement program.

The children in the program were almost all drawn from grades 1, 2, and 3 in six elementary schools. All of these schools served high percentages of disadvantaged students (as determined by AFDC figures), many of them Mexican-American or Negro. The Anglo students in one school, for instance, amounted to only 11% of the enrollment. The schools ranked lowest in the district on all available criteria of achievement. The district (23,000 pupils) included middle and lower middle class families as well as families with low incomes. The children were selected for the program on the basis of teachers' opinions and diagnostic test scores. Boys considerably outnumbered the girls.

The program became fully operational in 1966-67 and has continued with minor modifications. In 1966-67, 1,385 students were served; in 1967-68, 1,230 students were included. The program ran for the school year.

Other programs operating in the district were Head Start, and a California Senate Bill 28 program to reduce class size in one of the six project schools. The Augmented Reading Project staff have no evidence that these other programs influenced the results of their project.

In 1966-67, pupils in the program gained an average of nine months in reading grade equivalents based on the Wide Range Achievement Test. The time between testings was about six months. In 1967-68, pupils in the program gained an average of four and one-half months in a period of just under four months between testings.

Personnel

A. Coordinator of Special Projects

A former elementary school principal who holds an EdD, the coordinator devoted part of his time to the Augmented Reading Project. His background included extensive teaching and administrative experience. He was responsible for supervising all phases of the program.

B. Evaluator (Research Specialist)

A member of the school district staff, the evaluator worked part-time on setting up the design, collecting and analyzing data, and writing reports for this program.

C. Counselors

Three counselors were especially employed for the program. All were certificated and held Master's degrees. Their activities included counseling, group testing (in 1966-67), and family and community contacts.

D. School Psychologists

Two psychologists were employed especially for the program to undertake individual testing, consultation, diagnosis, and parent contacts. Both were certificated.

E. Remedial Research Specialist

These four teachers all had special training in remedial reading techniques, and an average of five years' relevant experience as well as elementary teaching experience. They worked with children individually or in small groups to remedy specific reading problems.

F. Helping Teacher

One successful classroom teacher was released from normal duties to work with the other teachers in the program to improve instructional practice and to assist in developing locally oriented reading materials.

G. Classroom Aides

The program provided 36 teacher aides, selected from the community. Many were from minority groups; some were bilingual. One aide assisted each teacher for two hours each day by performing nonprofessional duties.

The program also obtained the services of a photographer-artist, who prepared photographs and layouts for the locally oriented reading materials, and made films and videotapes of children's activities.

Other staff involved in the program were a secretary, five full-time clerks, a bus driver, and an accountant. Custodial services were also provided for the special facilities.

Methodology: General

The aims of this program for the chilren were to raise scores on reading tests, to broaden their total life and academic experiences, and to help them to relate reading and reading skills to their overall needs.

The program also aimed at involving and interesting parents, and other members of the local community, in the education of the children in the program as well as in the education of others in the same classes.

These objectives were chosen for the program by district staff meeting with members of the community.

The major components of the program were named Reading Augmentation, Classroom Support, Cultural Enrichment, and Community Activation.

Reading Augmentation was the component most closely linked with reading. Remedial reading instruction was provided to all pupils considered to be in need of it on the basis of diagnostic test results and the judgments of school personnel, particularly the teachers. This instruction was provided in groups of three to six, or individually, by a remedial reading teacher. Two schools shared the services of one such teacher. Additionally, one "helping" teacher served all the schools in the program, to help classroom teachers to develop various approaches to reading problems. This she did by conducting in-service workshops for teachers in the program, by making presentations at staff and parent meetings, by evolving curriculum projects, and by visiting classrooms to discuss and demonstrate. She also assisted in securing community participation. During the first year of the program, the "helping" teacher worked on the development of reading materials geared to the interests and needs of the children.

The Classroom Support component comprised two elements, classroom aides and special materials. The aides provided assistance in general classroom management, and, under the supervision of the classroom teacher, worked with small groups and individual children who needed extra assistance. The special materials included professional books and references dealing with the problems and needs of disadvantaged children, as well as curriculum materials and equipment as described under the next heading.

The Cultural Enrichment component in the first year comprised lessons on music, art, literature, and library skills, and field trips. These were only indirectly related to reading. In 1967-68, field trips and the lessons on literature and library skills were continued.

Community Activation was secured through the work of the program's psychologists and counselors as well as that of teachers. Parent education meetings were held.

Methodology: Specific

Materials and equipment were selected to provide the classroom teacher with a variety of resources to support the teaching of reading. Teachers had the option to select items which they believed met the needs of project pupils in relation to their style of teaching. Materials and equipment included the following:

Materials

Reading Laboratory Kits, S.R.A.	Science Research Associates
Language Experience in Reading, Van Allen	Encylopedia Britannica Co.
Phonics We Use Learning Kit	Lyons and Carnahan Co.
Talkstarters	Scott, Foresman Co.
Word Study Charts	Ginn and Co.
Outset, Sound Filmstrip Program	Guidance Associates Co.
Discussion Pictures	Harper and Row Co.
Early Childhood Learning Materials	McGraw-Hill Co.
Introducing English	Houghton Mifflin Co.
Auditory Readiness Program	Education Development Laboratories
Look, Learn and Listen Reading Program	Education Development Laboratories

Reading books, film strips, etc., from a variety of publishers reflecting the multiracial and intercultural society of today.

Equipment

- Tape recorder
- Listening posts
- Overhead projectors
- Language masters
- Cartridge-load 8mm projectors
- Filmstrip projectors
- Record players
- Typewriters

Books Without Words (Sequence Pictures)

Present pictures in proper sequence. Encourage discussion. Ask, "What do you think happened next?"

Mix up order and place pictures on chalk ledge. Choose a child to come forward and find the picture that shows what happened first. Another child finds the next picture, and so on. Repeat this activity several times using different vocabulary, including such terms as next, after that, later, before, and then, first, second.

Use small sets of pictures as an individual activity for children who need extra help. Dots on the back of each picture provide a self-checking device.

When children have had many opportunities to arrange pictures in sequence, assemble pictures in order and secure them with large loose-leaf rings. Children may dictate captions. These can be written on sheets of tag cut the same size as the pictures and added to make pages for the book, which may then go on the library table.

In-service Training Activities

An in-service training program designed to acquaint all project-involved personnel, including classroom teachers in the target-area schools, with the special problems of disadvantaged students which stem from ethnic, economic, and/or cultural influences are undertaken.

a. A series of six general meetings was held in the school district auditorium on the following topics:

Session 1	"Pomona, Our Changing Community"
Session 2	"Human Relations Problems of the Mexican-American Student"
Session 3	"Human Relations Problems of the Negro Student"
Session 4	"Human Relations Problems of the Anglo-Caucasian Student"
Session 5	"Meeting the Needs of Divergent Social and Ethnic Groups in the Classroom"
Session 6	Panel Discussion

b. A panel of Negro parents presented their views on the educational needs of the Pomona District to new teachers as a part of their in-service orientation.

c. A consultant from the University of Southern California was secured to meet with the target school staffs to discuss their specific school program needs on an informal and individualized basis.

d. Library materials related to compensatory education were purchased and distributed to the target area schools, while reference copies were place in the District's professional section of the central library.

e. A special series of three discussions was held for administrators in June to review the complexities of the educational scene with emphasis on more effective school programs.

f. Aides were given in-service training by principals (who were also responsible for selecting them).

g. Remedial reading teachers were trained in District institutes.

h. Special summer curriculum development went on, directed at Mexican-American and Negro history and culture. The workshops for this purpose were attended by the regular teachers, and were followed by in-service training sessions at the schools, addressed by special consultants.

Evaluation

A. Measures of Achievement

For the evaluation of the program, no suitable control sample was available in 1966-67, nor in 1967-68. Pre- and posttest scores were obtained for experimental samples on the Wide Range Achievement Test in each grade. In 1966-67, about six months elapsed between testings; in 1967-68, just under four months elapsed.

The experimental sample was selected in 1966-67 by using every third name from alphabetical class rosters until eight boys and eight girls had been chosen from each grade (1 through 3) in each of the six schools. This provided a nearly random sample of 288. Of this sample, 213 pupils completed the testing program. There is no evidence that the 75 pupils lost would have biased the conclusions.

Table 25 summarizes the gains made in the 1966-67 school year by the children in the sample. It should be stressed that these children received varying amounts of the treatment, depending on their individual needs.

In 1967-68, the experimental sample was again randomly selected and numbered 280. At posttest 265 pupils remained, of whom 169 were boys. Again, there is no evidence that the 15 pupils lost from the sample would have biased the conclusions.

TABLE 25

Gains in Reading Age by Pupils
in the Augmented Reading Project,
1966-67

	Wide Range Achievement Grade Equivalents		
	Pretest (N=213)	Posttest (N=213)	Gains in 6 months
First grade boys	1.0	1.9	9 mos.
First grade girls	1.1	2.1	1 year
Second grade boys	2.1	2.9	8 mos.
Second grade girls	2.4	3.2	8 mos.
Third grade boys	3.2	4.1	9 mos.
Third grade girls	3.3	4.0	7 mos.

[Adapted from Tables 7, 18, and 28, Pomona Unified School District (1967).]

Table 26 summarizes the gains made in the 1967-68 school year by the children in the sample. As before, they received varying amounts of the treatment.

TABLE 26

Gains in Reading Age by Pupils
in the Augmented Reading Project,
1967-68

	Wide Range Achievement Grade Equivalents		
	Pretest	Posttest (N=265)	Gains in 4 months
First grade	1.2	1.7	5 mos.
Second grade	2.1	2.6	5 mos.
Third grade	3.1	3.5	4 mos.

[Adapted from Tables 3, 11, and 19, Pomona Unified School District (1968).]

The conclusions that may be drawn from Tables 25 and 26 are that the children in the samples from the program were making exceptional progress in reading, considerably above what might be expected from disadvantaged children, who normally gain six or seven months of achievement in ten of schooling. The progress of children in the program is demonstrated in Figures 4 and 5.

Other achievement tests, including the Metropolitan Readiness Test, the Stanford Achievement Test, the California Test of Mental Maturity, the Ginn Reading Level Assessment, and the Letter Naming Tests, were employed at various stages of the program for diagnostic and assessment purposes, but did not provide data suitable for illustrating gains. For example, in 1966-67, the California Test of Mental Maturity was used only once, in only the third grade. The Stanford Achievement Test was used in all three grade levels, but only once. In 1967-68, similar testing patterns prevailed. The Ginn Reading Level Assessment and the Letter Naming Test were locally constructed.

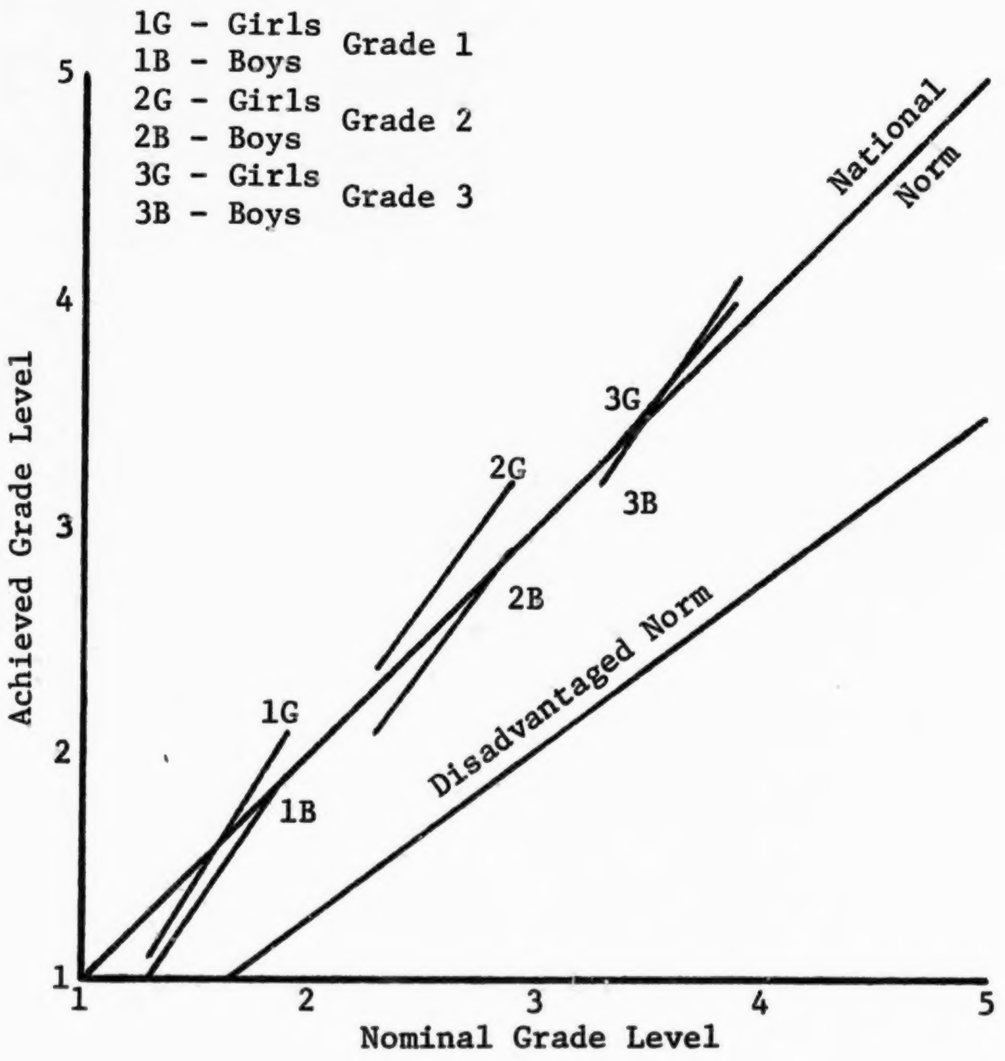

Fig. 4. Gains in reading age by pupils in the Augmented Reading Project, 1966-67.

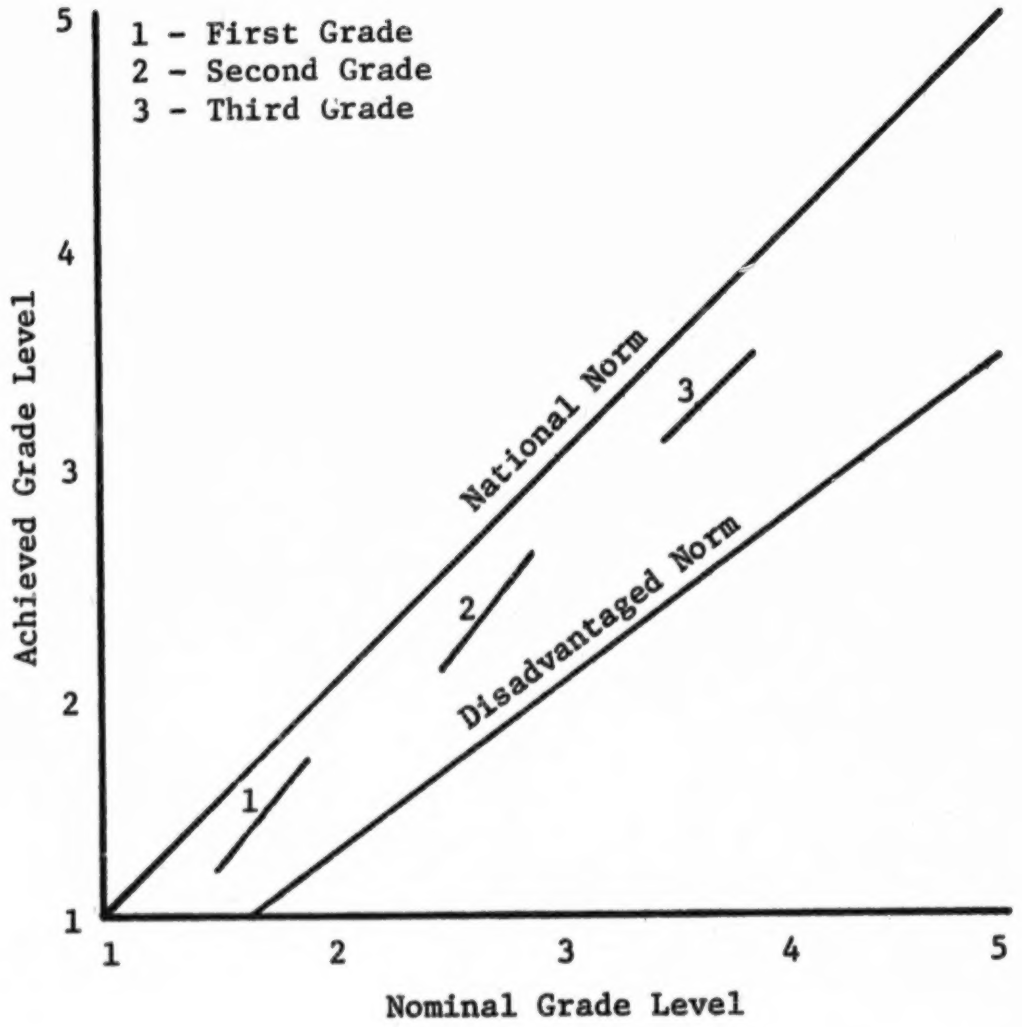

Fig. 5. Gains in reading age by pupils in the Augmented Reading Project, 1967-68.

B. Other Evaluation Indices

A Pupil Attitude Scale, a Parent Attitude Scale, and a Pupil Rating Scale (to be completed by the teachers) were prepared locally. The attitudes measured by these instruments were shown to be generally strongly favorable to the program.

Budget

4	Remedial Reading Teachers	full-time
1	Helping Teacher - Primary Grades	full-time
1	Photographer-Artist	part-time
1	Coordinator	part-time
1	Evaluator	part-time
3	Counselors	full-time
2	Psychologists	full-time
36	Classroom Aides	part-time
1	Secretary	full-time
5	Clerks	part-time
1	Bus Driver	part-time
1	Accountant	part-time

In the 1967-68 year, additional costs per pupil for the program were estimated at $230 (compared with a base cost of $570 per pupil). Start-up costs for the program were limited to materials, and to the provision of portable rooms at each school. Continuation costs were estimated to be 85% for personnel, 15% for equipment and materials.

Modifications and Suggestions

Few changes were made during the two years reported here. In 1968-69, the program was extended to K-6. Additional in-service training was provided, and objectives were sharpened. More classroom aides would be added if funds became available.

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EXPANDED LANGUAGE ARTS
IN BUFFALO, NEW YORK

Introduction

The purpose of the Expanded Language Arts Program was to increase the basic language skills of educationally disadvantaged children by decreasing class size and improving instructional materials.

The students were educationally disadvantaged seventh through twelfth graders enrolled in target-area schools in Buffalo, New York. They ranged in age from 11 to 19 years and came from heterogeneous inner-city neighborhoods in which the occupations of heads of families varied from unskilled to professional, with some receiving welfare. Fifty percent of the students spoke a Southern rural dialect, 20% spoke Italian in the home, and about 1% spoke Spanish in the home. The remaining students spoke standard English.

Project children were selected by the high school guidance counselors. Their classroom grades and scores on reading tests and the English departmental examinations were used as a basis for selection. Eighty-five percent of the students chosen were achieving in the lower third of their class. The remainder were drawn from a middle ability group.

The program began in February of the 1965-66 school year. It took place in four public and two parochial high schools. During that year 2,871 children were involved, many for only a 6-week period. In 1966-67 and 1967-68 the program operated for the whole school year. One additional public school joined the program. The number of participating students dropped to 1,884 in 1966-67, since the 6-week revolving plan was replaced by a full year's class with pupils who remained all year. In 1967-68, due to a change in funding, the parochial schools had to be dropped and the total participating students became 1,626 in number.

An evaluation of the 1966-67 program showed project pupils gained 9 months in language achievement during the 7 months between testings. The California Language Test was used in the evaluation.

Personnel

A. Project Administrator

The administrator was responsible for staffing, program planning, coordination of the project with the regular English program, supervision of teachers, and in-service training.

B. Teachers

There were 20 full-time teachers in the program, 6 males and 14 females. All were certified by the Buffalo Board of Education,* but only two had relevant experience before joining the program.

The teachers were assigned to secondary schools in the target area on the basis of one project teacher for every three regular language arts teachers. They were assigned small groups averaging ten pupils, for whom they provided a highly individualized program of instruction.

C. Clerk

There was one full-time clerk, who handled all typing, record keeping, and other clerical activities related to the program.

Methodology: General

The objectives of the Expanded Language Arts Program were:

"A. To effect an improved teacher-pupil ratio in language arts classes through the addition of teachers to each school faculty.

B. To convert each language arts classroom into a virtual laboratory for the teaching of writing.

C. To effect an improvement in the oral language skills of educationally deprived children through the increased use of electronic recording and playback equipment.

D. To provide for closer supervision of the language arts program in educationally deprived areas." (Clapp, 1966, p. 1)

The students participating in the program were assigned to small groups (averaging 10 pupils) for instruction in language arts. These classes were taught by teachers hired for the program. Thus, the size of the regular English classes was reduced, although the effect of this on the performance of students in these classes was not evaluated.

The program emphasized providing each pupil with as much practice in speaking and writing as possible. Project teachers were free to select their own specific lesson topics and techniques, but they were encouraged to use a maximum amount of small group and individual instruction. Activities were designed to be relevant to the pupils' life situations. Very little time was devoted to the formal study of grammar and punctuation. These topics were treated only incidentally as part of the study of clarity of expression.

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*Buffalo certification is by examination. All applicants must have a college degree in the teaching area, but hours of credit in education are not required for beginning as a temporary teacher. Those teachers who do not have education credits must take 6 hours of education courses during each year until they complete 18 hours in the required courses.

The materials used in the program were chosen to encourage active participation in the learning process. Composition skills were studied by examining literary samples of the students' own writing via the overhead projector. Tape recorders were used for practicing skills in formal and informal speaking. Films and filmstrips were used as attention-getters in introducing new topics. Textbooks and standard reference books were presented as composition tools. In addition, the magazines and paperback books used in the program were chosen to provide interest and motivation.

A major component of this program was the closely structured supervision of teachers. The program was initiated by a week of orientation meetings during which lectures and discussion were held on such topics as the use of new materials and individualizing instruction. During the year, in-service meetings were held once a month to provide an opportunity to exchange ideas and to learn the use of new materials. Special meetings were called by the teachers or the project administrator whenever the need arose. Each teacher also received a weekly visit from the project administrator which included a class observation followed by discussion. In addition to the schedule of meetings, curriculum bulletins were sent out once a month containing helpful information and ideas for lessons gathered from teachers, administrators, and consultants on topics related to the program.

Methodology: Specific Examples

A. The following are examples of the types of learning experiences which were provided by the Expanded Language Arts classrooms:

Writing instruction concentrated on expository writing, for the most part. Students were given practice in writing job applications, composing personal and business letters, and explaining points of view. Speaking lessons were equally as practical. They included the development of conversation skills through the discussion of current, controversial community issues, practice in giving accurate directions, and experience with simulated job interviews.

B. Each English teacher in the project schools was provided with a tape recorder, a record player, an overhead projector, a projection screen, a portable equipment table, and a listening unit complete with eight headsets. A collection of 16 records, 8 filmstrips, and 18 films were also available to all the English teachers in the project schools.

Topics such as the following were included:

Records: -	"Julius Caesar"	Marlowe Society Encyclopedia Britannica Wilmette, Illinois
	"Early American Ballads"	Folkways/Scholastic Records Englewood Cliffs, New Jersey
	"The Changing English Language"	Folkways/Scholastic Records Englewood Cliffs, New Jersey

Filmstrips -	"Steps in Building a Paragraph"	Society for Visual Education Chicago, Illinois
	"Myths and Legends of Ancient Rome"	Eye Gate House, Inc. Jamaica, New York
	"Understanding Poetry Series"	McGraw-Hill Text Films New York City, New York
Films -	"Word Building in Our Language"	Coronet Films Chicago, Illinois
	"Ways to Better Conversation"	Coronet Films Chicago, Illinois
	"Writing a Good Paragraph"	Coronet Films Chicago, Illinois

C. Each project and regular English teacher received one copy of the following books:

Roget's Thesaurus (Everyman)
Warriner's English Grammar and Composition (Harcourt, Brace and World)
Bartletts' Familiar Quotations (Little, Brown, and Company)
Language Programs for the Disadvantaged (National Council of Teachers of English)

D. Oral language laboratory teachers received publications such as the following:

Social Dialects and Language Learning (National Council of Teachers of English)
Non-Standard Speech and the Teaching of English (Applied Linguistics)
Pattern Practice in the Teaching of Standard English to Students with a Non-standard Dialect (Teachers College, Columbia Univesity).

E. The following books, magazines, transparencies, etc., were also ordered for use in each classroom:

Webster's Seventh New Collegiate Dictionary (G. & C. Merriam Co.)
Learning Your Language (Follett)
Gateway Series (Macmillan)
On Target, Top Flight, Best TV Plays (Scholastic Publication)
The Galaxy Series (Scott Foresman)
New Worlds of Literature (Harcourt, Brace and World)
SRA Contemporary Composition Transparencies (Science Research Associates)
Creative Writing Transparencies (EAV, Pleasantville, New York)
Scope Magazine (Scholastic Publications)
Scope Skill Books (Scholastic)
16 paperback books, such as:
- The Family Nobody Wanted by Doss (Scholastic)
- Lilies of the Field by Barrett (Scholastic)
- A Separate Peace by Knowles (Bantam)
- The Venetian Affair by MacInnes (Crest)
- The Pearl (Viking Press)
- The Red Pony (Viking Press)
- A Bell for Adano by Hersey (Bantam)

Evaluation

A. Measures of Achievement

No objective evaluation was made of the initial half-year of the project (February to June, 1966), which was devoted to the organization and administration details necessary to put the program in operation.

In 1966-67, two standardized achievement tests were administered as pre- and posttests. These were the California Language Test, Junior High and Advanced Levels, Forms W and X, and the Sequential Tests of Educational Progress (STEP), Levels 2 and 3, Forms A and B.

The tests were administered by the project teachers to all pupils who were in attendance on the testing dates. The pretest was administered in October and the posttest in May.

The project students made essentially no gain on the STEP in the seven months from pre- and posttest. The teachers felt that this test was too difficult for the students and, as a result, that their motivation to do well was very low.

Gains were made, however, on the California Language Test. A total of 1,268 of the 1,884 registered pupils were present at both pre- and posttestings. Table 27 shows the mean gains in terms of grade equivalents for an unbiased sample of 612 pupils, who comprise the set of raw data on hand in May of 1969. At least one class from each of the 20 teachers is represented.

TABLE 27

Average Language Gains in Grade Equivalents for Pupils in the Expanded Language Arts Program 1966-67

Grade	Sample N	Registered N	Pretest Mean	Posttest Mean	Mean Months of Gain in 7 Months
7	78	361	5.3	5.9	6
8	74	308	5.9	6.5	6
9	202	423	9.6	10.4	8
10	72	293	8.6	10.1	15
11	98	268	8.8	10.2	14
12	86	231	10.2	11.0	8
	610	1,884			

As can be seen from the table, the mean gains for the total sample for grades 9 through 12, representing 65% of the registered pupils, were greater than the time between testings.

No test data were collected in 1967-68. Evaluation that year was in terms of anecdotal statements from teachers and pupils. Results from the 1968-69 school year had not been collected at the time that this report was compiled.

B. Other Evaluation Indices

One other non-standardized test was used to assess achievement gains of program students. This consisted of comparisons by the Project Administrator of samples of the students' writing ability. Two compositions by each student, one from the beginning and one from the end of the semester, were compared at the end of each semester. The results were summarized as follows:

> "More than any other impression gained from the samples was the indication that the students had been motivated to think and to express their thoughts effective in writing.
>
> Reports were received that boys and girls who had written very little and who seldom responded in regular classes were trying hard and were producing written work in which they and their teachers felt proud" [Clapp, 1967, p. 14].

Besides these evaluations of cognitive achievement, attitudinal measures were used as well. Principals evaluated the program, in general, and the project teachers in particular. Most principals and teachers were in favor of retaining and expanding the program. Teachers' answers to a survey showed a wide acceptance of the audio-visual aids and other new materials and equipment supplied by the program. Students were polled for their opinions about the program. They especially enjoyed the individual attention made possible by smaller classes.

Budget

The first 2 1/2 years of the program (February 1966 through June 1968) were financed in full by funds from ESEA Title I grants. In the fall of 1968 the cost of operating the program was taken over by the New York State Urban Aid Fund.

The total operating cost for the most recent school year (1967-68) was $217,878 for 1,500 students, yielding a per pupil cost of $145.50. The main sources of expenditure for that year can be broken down as follows:

Salaries of Administrator, Clerks, and Teachers	$147,785
Office Equipment and Supplies	500
Staff Transportation and Conference Travel	497
Teaching Equipment, Supplies and Materials	12,402
Retirement - Teachers and Civil Service	30,658
Social Security, Insurance, Workmen's Compensation	12,501
Total	$204,343

In addition to the yearly operating cost, a total of $55,855 was spent on teaching supplies and equipment when the program started.

Modifications and Suggestions

The project administrator suggested the following alterations in the existing program:

A. The addition of a reading development program complete with the necessary personnel to supply in-service training and consultation.

B. A drive to increase parent involvement through personal invitations to attend classes.

C. More in-service training devoted to methods of individualization, a technique which has proven difficult for some teachers.

D. A thorough examination of the appropriateness of the materials used in the program.

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UPWARD BOUND PROGRAM
TERRE HAUTE, INDIANA

Introduction

Upward Bound was a precollege program designed for high school students with potential who had been handicapped by economic, cultural, and educational deprivation. Its aim was to help those students throughout high school and to encourage them to continue into higher education. It involved a full-time summer program and follow-up programs during the regular school year. Students joining the program stayed in it for three consecutive summers.

The students were recruited from high schools of the Terre Haute and Greater Indianapolis areas. Each student had to meet the following criteria to be eligible for the program: have completed 15 credit hours by the time of admission into the program; be unmarried; have a recommendation from a teacher or counselor testifying that he had potential to do college work; come from a family whose income did not exceed a maximum set by the Office of Economic Opportunity; and have the ability to exceed his level of achievement at time of admission into the program.

There were 76 students enrolled in the 8-week summer session of 1966. Approximately 55% were Negro and 45% Caucasian; the mean age was 15.6 years; 46% of the students were male. Upon entry into the program all the students had completed grade 10 and the high school grade-point average of the group was 2.17. Some 50% were living with one parent; 33% came from a 1-4 children family; 47% from a 5-8 children family, and 15% from a 9-12 children family.

Upward Bound, which is a community action program, has been underway since 1966 when it began at Indiana State University. Community agencies and individuals helped with the recruitment of students, contacting high school teachers and counselors for possible candidates. The program has operated not only as a summer school but also during the academic year in order to consolidate the gains made by the students during the summer.

Pre- and posttesting on the Differential Aptitude Tests showed significant gains in percentile rankings for project students.

Personnel: Summer Program

A. Project Director

The director worked full-time to coordinate all aspects of the program with community action agencies, high school personnel, community members, project staff, and the university's fiscal officer. He was also responsible for supervising the evaluation of the program. He held a PhD and had administrative experience in similar projects.

B. Administrative Assistant

The assistant worked full-time with the director to insure that every phase of the program had been arranged for in terms of space, facilities, personnel, and the scheduling of events. He also assisted the staff with daily problems, supervised testing, wrote reports, and maintained records.

C. Director of Counseling

He worked full-time to supervise the over-all counseling program, including any psychological testing, the activities of dormitory counselors, and the coordination of the counseling activities with those of the rest of the program.

D. Dormitory Counselors

Six university students who were in summer residence on the campus worked as part-time counselors. They lived in the dormitories with the project students, spending their free time with them each evening from 5:00 p.m., and accompanying them on field trips and Friday afternoon outings to the university's recreation area. They also attended regular staff meetings, kept records of student behavior, and worked with the director of counseling to solve student problems.

E. Language Arts Instructors

Two full-time teachers provided instruction in language arts. Each had an MA in language arts and 2 or more years of teaching experience.

F. Mathematics Instructor

One full-time teacher provided instruction in mathematics and critical thinking.

G. Instructor in Methods and Techniques

One part-time teacher provided instruction and exercises designed to develop good study skills and supervised perceptual training sessions.

H. Physical Education Instructors

Three part-time teachers provided instruction, guidance, and supervision in all areas of the recreation-physical education program.

I. Arts and Crafts Instructor

One part-time teacher supervised the arts and crafts program.

J. Choral Director

One part-time teacher provided music instruction and supervised and conducted the student concerts.

K. Director of Theatre Activities

One full-time teacher provided instruction and supervision in the production of several one-act student plays.

L. Laboratory Supervisor

One part-time university student worked with the instructor providing individualized training with the tachistoscope and audiovisual equipment. He also kept records of each student's progress.

M. Secretary

One full-time secretary handled all the typing, record keeping, and other clerical activities related to the program.

In addition to the above, six National Teacher Corps personnel provided occasional help with special projects or extra tutoring, when needed.

Personnel: Academic Year

A. Project Director

The director worked part-time to supervise the activities of the high school counselors, working with them and the students to plan special programs for both students and parents. He had had experience working in the summer program.

B. Assistant Director

The assistant director worked full-time with the project director in supervising the counseling and tutorial activities in the schools.

C. Counselors

Twenty-three counselors from high schools which project students attended met with each student at least once a week to handle any academic or non-academic problems which might arise. They also kept in close touch with teachers to identify the need for tutors, recruited the tutors, planned special programs, and kept the necessary student records. Each had some training and experience in counseling high school students.

D. Tutors

Tutors were employed as needed. They were usually high school seniors with recognized ability in the areas in which students needed help. Teachers or other community persons not teaching professionally, but with academic background,were also employed as tutors. The tutors worked 1 hour a week with students who needed assistance.

E. Secretary

The secretary handled all clerical duties related to the program.

Methodology: General

Summer Program

The general objective of the program was stated by Jordan (1967):

> To create an enduring aspiration to complete a college education or some other kind of postsecondary high school training in each student and to assist him to acquire the basic skills and knowledge needed to realize this goal.

Students participating in the program lived at the Indiana State University campus during the summer. Part of the rationale behind the residential aspect of the program was that being away from his usual life situation would leave the student free to develop different attitudes and to consider possible goals. Also, by living together as a tightly knit group on campus, students would establish meaningful relationships with other human beings which would help them change attitudes and values.

The program director developed a well-structured curriculum for the first summer session, moving toward a progressively less-structured one each successive year. During the first year all courses were required; this was done in order to provide all students with adequate information on which to base subsequent subject selections during years when the courses would be presented as electives.

The first summer the program was organized to keep the students busy most of the time, so as to avoid too much free time when the students, still not aware of all the possible things to do, might lapse into listlessness that could be detrimental and hard to deal with. Resident counselors worked with students in small groups to plan activities for only part of their free time, leaving time for individuals to pursue whatever activities they wished, including napping or just resting. The day began at 7:30 in the morning and classes and other activities continued up to the evening meal. From time-to-time play rehearsals, concerts, and other activities were organized for the evenings.

The Upward Bound instructional curriculum covered the following areas: language arts, mathematics, study methods and techniques, and perceptual skills.

Language Arts. During the first week of the program, the language arts teacher tested the students, using both standardized and unstandardized tests. On the basis of the students' performance, several classroom groupings were formed which reflected both interests and abilities.

The curriculum developed for the language arts program centered around reading, writing, and grammar.

Materials from the Science Research Associates Reading Laboratory were used to increase the students' rate and comprehension in reading. To awaken and maintain their interest in reading for leisure, they were encouraged to use the classroom and community libraries, and were provided with library cards for the Indiana State University and Terre Haute City libraries.

To help develop facility of free-written expression, a "Journal of Opinions and Comments" was kept by each student. In this diary he recorded any feeling or opinion he had about himself, the program, his life situation, and his aspirations. This was recorded on the left-hand side of the notebook and the teacher recorded his reaction of the comments on the right-hand side. Besides being good writing practice, the statements by students were a source of feedback on the program and as a result of it, in some cases, aspects of the program were altered on the basis of suggestions or complaints found in the journals.

An experimental method in teaching spelling was tried. The method consisted of increasing the students perception in recognizing misspelled words by means of timed observation of prepared lists of words, some of which were misspelled.

Another section of the language arts program was devoted to exercises designed to increase students' awareness of acceptable forms of usage by spotting errors in sentences projected on a screen. This was further supplemented by activities geared to increase the understanding of sentence structure.

To make the students feel that their academic experiences were integrated into a meaningful whole rather than being made up of independent parts with nothing to do with each other, the language arts program tried to present materials related to other aspects of the program. For example, one of the plays which was being presented by the drama section was studied during the language arts classes and discussions were held on the structure and meaning of the play. Similarly, exercises in verbal reasoning and a study of word analogues were integrated with the concepts of ratio and proportion being studied in mathematics.

Wherever applicable, the basic technique of "test-teach-test-teach-test" was utilized by the teacher. Since there was a wide range of language arts abilities among the students, however, provisions had to be made for independent study, individual assistance, and small group activities such as discussing what was being learned in class, or criticizing each other's exercises and performance.

Each student was provided with a dictionary, two paperback novels for reading and comprehension exercises, and all paper and pencil supplies needed. The objectives for each day's work were posted on the blackboard at the beginning of the class period so that the students had a clear idea of what was to be achieved during the class period.

Mathematics. Mathematics classes during the first summer session were devoted primarily to arithmetic, leaving algebra for the following year. Whenever possible, the teacher tried to use various approaches that would maintain the interest of the students. Part of the class periods was devoted to "new mathematics," and sets and module systems were introduced and explained.

To help teacher-student relationships and to give students encouragement, the teacher gave each student a daily opportunity to respond at least once; he also tried to talk with each student during the class period and discuss what progress was being made.

Study Methods and Techniques. The purpose of this part of the program was to help students to identify their poor study habits, and to replace them with more efficient ones. At the same time, students were expected to develop an understanding of the principles underlying sound study methods and techniques.

The first phase of the program involved the teaching of basic learning theory principles on a rather elementary level. This was done through films and by lecture-discussion sessions. The second phase was a laboratory demonstration of how the learning principles which had been discussed worked. The third phase involved the learning of the PQRST study technique.

Perceptual Skills. This section of the program provided the students with instruction on the most basic level of reading experience: the perception of words. To provide this training the tachistoscope was used. Two groups of approximately 20 students met the first 4 weeks of the program and another 2 groups the second 4 weeks. The program started with an introduction to the tachistoscope by means of the Familiar Form Series and the Geometric Form Series. This was followed by 2 to 4 days of noun and "non-noun" word (such as verbs and adjectives) recognition, leading to digit recognition. Finally, the students were introduced to grouped number recognition beginning with three digits and progressing as far as six. At that point groups of 10 to 14 digits were presented and the students were asked to record the first and last digits, the first two and last two digits, and so on. The last phase of the program involved short phrase and sentence recognition, and finally longer series of phrases and sentences.

All the work with the tachistoscope was done using the speed setting of 1/100 of a second because it appeared more challenging to start the students with simple forms at fast speeds and work up to more complex forms. By working gradually from simple forms to more abstract materials, students were rarely faced with "impossible" recognitions and were thereby provided with a situation in which reinforcement was always possible.

Counseling. The Upward Bound counseling program helped students to change certain behavior patterns, and enabled them to recognize and utilize their latent resources. The emphasis was on the student becoming self-disciplined.

Counselors interviewed each student during the first few weeks of the program. The interview records were studied by the director and the counselors, and a counselee's problems were discussed with him subsequently.

Small-group sessions were also held to discuss a variety of topics ranging from academics to sex; these sessions helped to break down barriers between students, and helped them to feel more comfortable with people of different backgrounds.

Cultural Activities. One of the purposes of the Upward Bound program was to engage the students in creative art activities that would prove challenging and exciting. This was provided by the art, music, and theatre activities. During the 2-hour art periods, students were free to engage in a variety of activities like painting, ceramics, sketching, or discussions. The music class met daily for a 70-minute period with breaks. The teacher tried to impart musical skills to his students and worked with the talent available in preparing a musical program to be performed at the end of the summer session. To provide them with theatre experiences and arouse and sustain interest in this new medium, the students participated in the staging of a comedy.

Physical Education. The physical education program provided activities for the boys which included instruction and free-play in several games, gymnastics, swimming, and diving. The program also offered some camping and outdoor life.

Various extracurricular activities during the first summer included visits to Indianapolis and Chicago, taking part in a TV show, picnics, and open houses at the homes of Upward Bound staff members.

Academic Year Program

The purpose of the academic year phase of Upward Bound was to consolidate the gains made by the students during the summer and increase their probability of continuing their higher education. To achieve that purpose, counseling, tutoring, Upward Bound Clubs, and parents' meetings were provided.

Counseling. Counselors from high schools which Upward Bound students attended joined the program. Each counselor met with his student at least once a week to review his work at school, discuss problems, and plan any course of remedial action that might be needed. A full record of activities and decisions relevant to each student was kept by the counselor and regular reports were submitted to the Upward Bound office. In this wav a file was built for each student so that any background information needed to anticipate problems or seize opportunities was readily available.

Before joining the program counselors attended a pre-service orientation period to gain an understanding of the program and their responsibilities to the students.

Tutoring. Counselors discussed the academic progress of the students with their teachers, and if tutorial help was needed tutors were assigned to the student. Each student generally worked with his tutor 1 hour a week.

Upward Bound Clubs. At the end of the summer session Upward Bound Clubs were formed in the high schools where there was a sufficient number of students belonging to the program. An Upward Bound newsletter was established as a means of keeping students in touch with each other, and reunions were organized to bring students, teachers, and counselors together from time-to-time. During these reunions activities ranged from attending a football game and discussion of plans for the following summer, to private interviews with counselors or teachers.

Parents' Meetings. Parents were invited to meetings with counselors. They also participated in sessions designed to give parents an opportunity to learn about the program, express their feelings about it, and exchange views on ways to help students continue their education after high school.

Methodology: Specific

A variety of innovative procedures and materials were used in the program. Some found to be successful are described below (Teachers College Journal, 1967):

A. The Word Game

"Several decks of 250 cards were made. Each deck of 250 cards was broken down into four sub-decks consisting of 170 white cards (on which one word was written which could function as noun, adjective, verb, or adverb), a pink deck of 25 cards (containing interrogative, relative, and personal pronouns), a blue deck of 35 cards (containing conjunctions and prepositions), and a yellow deck of 30 cards (containing definite and indefinite articles and interjections). To play the game, each of the sub-decks is shuffled, the dealer deals seven white cards to each player. Each player is then permitted to draw one or two cards from each of the pink, blue, and yellow decks. After examining all of his cards each player selects two cards that he does not want and passes them to the player on his left. This much of the procedure was the same for all games. The object of this particular game is to make a grammatically sound sentence that makes sense out of as many words as is possible in the hands dealt. A point is given for every white card used, and if all seven are used there is an additional bonus point. Successive hands are dealt until 25 or more points are accumulated by one person. The person who makes 25 points wins the game and is given a small token prize of some kind.

One of the ideas behind the game was to get the students into the habit of understanding sentence structure in terms of the functions of the words which make up a sentence. It came to our attention that a good number of the students thought that a given word was either a noun or a verb or some other part of speech but could not fall into the category of more than one part of speech. On the white cards, for instance, one word is printed with several possible endings to the word listed in parentheses with a code in the lower left-hand part of the card indicating the different parts of speech the word could be. The card that has the word "paint" on it may be used as an example. The word could be paint, paint(ed), paint(er), or paint(ing), and these various words could function as nouns, verbs, adjectives in the form of past participles, gerunds, and so on.

Though there is evidence that under-achievers do not respond constructively to competition, the spirit of the game seemed to transcend that problem, and in any case the competition was not so much that of one person against another as it was each person trying to make out of his own individual hand of cards, which had been randomly dealt, the best possible sentence using the greatest number of cards. Since the class had to be broken down into small groups in order to play the games, this provided another change of pace and increased the variety of activities in the language arts program."

B. Dictating Units

IBM portable dictating units were used in the language arts class. "Special materials were prepared for oral presentation to a class which had been divided into four small groups of five, each one of which had a small dictating unit. After the members of each group had been instructed in the use of the dictating unit and had had a chance to practice using it, the specially prepared talks were then presented to the class. Each verbal presentation contained material that was engaging and interesting. Each one contained a discrete amount of information so that some measure of information recalled could be made. The purpose of this exercise was to develop the student's capacity to listen carefully to a verbal communication, recall as much of it as is possible accurately, and represent it verbally without editorial comment and with or without a reorganization of content. One of the topics presented concerned the controversy between the tobacco companies and the Surgeon General's report linking smoking to lung cancer; another concerned the charges by independent writers that the Warren Report on President Kennedy's assassination was incomplete or erroneous because certain crucial kinds of information were missing, notably the autopsy photographs and X-rays. Interest ran high and students were generally very surprised at the amount of information which they could, with concentration, retain and re-express verbally. Some students could remember as much as 99% of the facts given. Another purpose behind this exercise was to develop the student's ability to weed out essential information from non-essential information in a verbal communication so that facility in taking relevant notes from classroom lectures might be increased.

National Teacher Corpsmen, who were assisting in the language arts program, prepared short 5 or 10 minute speeches on various topics such as the two mentioned above for presentation to the class. After each presentation one person in each group would summarize the speech he had heard on the belt of the IBM dictating unit. These would be played back immediately, and other members of the group would then identify gaps in the information recorded or would point out distortions or inaccuracies in the recording. In this way each student was able to have immediate feedback on his performance. For most students, these exercises turned out to be a positive experience, since nearly everyone found that he could maintain attention for a relatively long period of time with a high degree of intensity and recall the material with an admirable degree of accuracy.

A third purpose behind the use of the IBM dictating units concerned the need for students to have realistic self-images. Many of the students had never heard recordings of their own voices before. For some this turned out to be almost painful. In every case it afforded the opportunity for the student to witness his own need for improvement in speech and an increase in his ability to communicate verbally."

C. Language Study Units

Study units in verbal word reasoning and word analogies and which also helped students to increase vocabulary were prepared for the students. "By way of introductory activities to this unit, a full discussion of the meaning of verbal reasoning was held, followed by an explanation of test scores in verbal reasoning, and of the need for improvement as a part of college entrance examination requirements. Time was taken to relate the concept of verbal reasoning to mathematical proportions (i.e., 2 is to 4 as 3 is to 6). Exercises were then set in defining the relationships between words. As an example students were asked to explain the relationship between the word coop and the word chicken (a coop confines a chicken) or the relationship between amplifier and loud (an amplifier makes a sound louder).

After the ability to state or define a relationship between words began to develop, exercises in supplying one missing term in a proposition were given to the students. For instance, such propositions as the following were presented: sly is to fox as wise is to ____ (owl); ____ is to kite as leash is to dog; mint is to ____ as bakery is to bread. As soon as facility in supplying one missing term in the proposition had been developed, students worked together in small groups to prepare statements like the above, making up their own propositions with the criterion that they had to be sensible and true. A subsequent lesson in verbal analogies involved supplying the last two missing terms in a proposition. For instance, bed is to lie as ____ is to ____ (chair is to sit); or length is to long as ____ is to ____.

Small committees were then formed for the purpose of preparing similar exercises. We found that having the students actually make up the problem helped them to develop understanding of the reasoning process involved in working with analogies. Finally, the students worked many exercises in supplying the first and last terms of the propositions. For instance, ____ is to lie as chair is to ____; or ____ is to finger as leg is to ____. Students were given a master worksheet with basic material for constructing verbal analogies and were required to prepare their own lists of verbal analogies with the extreme terms missing. Each student reported to the class and the class criticized his work. Additional periods were scheduled for practice in supplying the second and the third terms (prison is to ____ as ____ is to chicken); and in determining first and last terms through verbal reasoning (____ is to vanquished as win is to ____)."

D. The PQRST Study Technique

The PQRST study technique provided a step-by-step "approach to learning new material and is firmly rooted in the findings of learning psychology.

The letters stand for each stage of the study system: preview, question, read, state, and test." The PQRST system was presented to the students by use of a programmed text (Staton, 1964).

Evaluation

A. Measures of Achievement

The only year in which cognitive achievement was evaluated by standardized tests was 1966. In the first 2 days of the program that summer, all students took the Differential Aptitude Test; 8 weeks later, they took an alternate form of the same test. No comparison group was available, hence claims for the success of the program are based on changes in the students' status on national norms published by the test manufacturer.

The Differential Aptitude Test comprises six subtests of verbal reasoning, numerical ability, language usage and grammar, mechanical reasoning, space relations, and abstract reasoning. A raw score can be derived for the whole battery; the authors advise against this because it involves adding together weighted scores. Tables are provided, however, from which national percentile rankings can be derived for each subtest. Jordan (1967) has reported the results of the Upward Bound program in terms of these percentile rankings.

The DAT yielded pre- and posttest scores for 60 students. Of these 60 only 3 students obtained lower average rankings on posttest. The average gain was 11 percentile ranks; on pretest the group stood at the 35th percentile nationally, while on posttest it was at the 46th percentile.

The significance of these gains was tested using the Wilcoxon Matched-Pairs Signed-Ranks Test. National percentile rankings were assigned to each subtest score, the magnitude and direction of change in percentile rankings from pretest to posttest was calculated, and an average change in percentile ranking was determined for each student. Analysis of these change scores showed a difference significant beyond the 1% level.

B. Other Evaluation Measures

Self-image of the students was measured using a locally-developed Q-sort test based on the Butler-Haigh Q-sort as used by Dymond and others. The majority of students showed positive changes, and the Wilcoxon Matched-Pairs Signed-Ranks Test indicated that these changes were significant beyond the 5% level.

Other attitudinal assessments, informally made, supported the Q-sort results.

Budget

The total operating cost for both the summer and academic year programs for 1966-67 was $109,359. Of this, $98,000 was provided by a federal grant requested under Title II-A, and $11,359 was contributed by non-federal sources ($1,450 by the participating high schools and $9,909 by Indiana State University). The 1966-67 program operated for 14 1/2 months, from April 15, 1966 to June 1, 1967. The summer phase cost about $80,000, of which about half was spent on personnel, and a quarter on accommodation (food as well as lodging).

Modifications and Suggestions

Since 1966, the program has been broadened to provide more opportunities for the student to select those subjects which interest him most and to include a variety of methods designed to increase motivation and achievement.

The project mathematics and language arts classes were dropped, and regular classes which are offered for credit by the Indiana State University Lab School and the University itself were substituted in their place. This change was based on requests from the majority of the project students, who felt that non-credit classes were "a waste of time." Each student now takes two non-concurrent, 5-week courses. Those students who will be reentering high school take high school courses that they had missed or found difficult, while students who will be entering college take basic freshman courses.

Two methods have been introduced for promoting success in academic courses. The dormitory counselors have been replaced by full-time tutor-counselors who aid the students with both their studies and any social-emotional problems. Counselors are chosen who will be on the campus during the following academic year, so that they will be able to continue assisting the Upward Bound students during their college years. A fine for absenteeism has also been added. Project students are fined $2 from their $10 weekly stipend for every class that they miss.

The non-academic portion of the program has also been altered to provide greater variety and freedom of choice in enrichment activities. In addition to the regular courses in physical education, art, music, and dramatics; special classes have been added in photography, dress design, creative writing, and instrumental music (guitar and drums). Courses which include large culminating activities have been found to be most successful in the past. Therefore, all enrichment classes are designed to include a large final project, if possible. The students in the creative writing and photography classes combine talents to publish a booklet of essays and illustrations; the dress design students stage a style show to display the articles that they have made in class; and the students of instrumental music give a talent show. A social studies course entitled, "The History of Minorities," has also been added.

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IDENTIFIERS

ABSTRACT

The principal aims of this study were to identify, select, analyze, and describe educational programs for culturally disadvantaged children from pre-school through grade 12 which had yielded measured benefits of cognitive achievement. An earlier (1968) AIR study had identical aims.

Identification and selection were accomplished through a literature search and mail inquiries, followed by telephone consultations. Site visits were made to 16 programs finally selected, situated in 12 urban areas, in 8 states.

As a result of the site visits, 5 programs were eliminated. For the remaining 11, descriptions were prepared which now constitute the body of this report. Most of the programs described were for inner-city Negro or Mexican-American children.

No program was included unless data available indicated that pupils in the program had achieved statistically significantly greater gains on standardized tests than had controls, or had improved at a rate better than national norms.

The report also includes details of the methods and procedures employed in the 1969 study, and contains a bibliography citing materials related to programs identified during the study.